AMERICAN

OCTOBER • 1951

Cinematographer

THE MAGAZINE OF MOTION PICTURE TECHNIQUES

In This Issue . . .

- FILMO-CAM—CINEMASCOPE IN 16MM
- TODD-AO—NEWEST WIDE-SCREEN SYSTEM
- IMPORTANCE OF VARIABLE CAMERA SPEEDS

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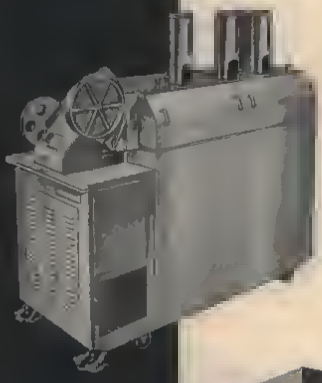

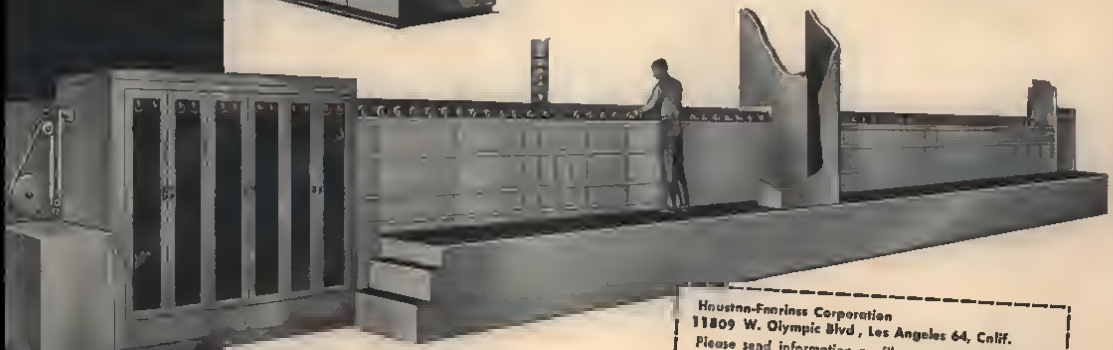

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AMERICAN

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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VOL. 35 OCTOBER • 1954 NO. 10

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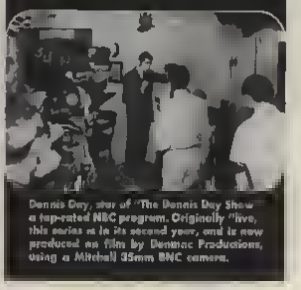
ON THE COVER

ROBERT L. SURTEES, first cinematographer to shoot a major production in Todd-AO, is shown with the camera which he is using in photographing the Rodgers & Hammerstein production, "Oklahoma." Camera takes 65mm negative, records picture 3½ times larger than that on standard 35mm film. Note grotesque size of the 128-degree "hugeye" lens—widest of the Todd-AO wide-angle lenses. See story beginning on page 494.—*Photo by Schuyler Crail.*

AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. Entered as second class matter Nov. 13, 1937, at the postoffice at Los Angeles, Calif., under act of March 3, 1879. SUBSCRIPTIONS: United States and Canada, $3.00 per year; Foreign, including Pan-American Union, $4.00 per year. Single copies, 25 cents; back numbers, 30 cents; foreign single copies, 35 cents; back numbers 40 cents. Advertising rates on application. Copyright 1954 by A. S. C. Agency, Inc.

On the set of "I Love Lucy," starring Lucille Ball and Desi Arnaz. This nation's Number 1 TV show for 1951 1952 and 1953 is a pioneer of the technique of filming its program as a live show with audience. Desilu Productions uses three Mitchell 35mm BNC cameras in filming "I Love Lucy"

Joan Davis on the set of "I Married Joan," produced by P. J. Wolfson and appearing on NBC. Three Mitchell 35mm BNC cameras are used on this top TV show, which is in its 2nd year. Jim Backus plays the male lead



Dennis Day, star of "The Dennis Day Show" a top-rated NBC program. Originally "live," this series is in its second year, and is now produced on film by Denmac Productions, using a Mitchell 35mm BNC camera.

TO FILM A SUCCESSFUL SHOW...

It takes more than just a good script to insure the success of a top-rated network program. The on-stage performances of the stars and supporting cast must be outstanding, carefully timed, superbly directed. And the camera must perform flawlessly in its vital role of recreating the superior quality of the show for millions of TV viewers.

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Hollywood
Bulletin Board

LADIES' NIGHT at the American Society of Cinematographer's clubhouse in Hollywood last month saw a gay gathering of members and wives enjoying the lawn party and dance which featured the French theme, "A Night in the Montmartre." Among those snapped by the candid camera were: (1) Mrs. Norbert Brodine receives gift from host Philip Tannura upon arrival with her popular cameraman husband, while ASC president Arthur Miller and Society VP Arthur Edeson look on. (2) Mr. and Mrs. William Meller step to chat with Arthur Edeson at the Cafe de Cinema champagne bar. (3) A happy foursome were (l. to r.) Philip Tannura, Mrs. Tannura, Mrs. Arthur Miller, and Mr. Miller. (4) Another party which arrived early and stayed late were (l. to r.) Len Boos, Mrs. Rees, Dan Clarke, Mrs. Clyde deVinna, Mr. Charles Handley of National Carbon, and Mrs. Handley. (5) A general view of the canopied area on lawn in front of the ASC clubhouse. (6) John Boyle looks on while Mrs. Boyle opens her lovely gift. (7) Arthur Edeson, who chairmanned the entertainment committee, takes a turn at the mike. (8) Peter Mole of Mole-Richardson Company listens to director Rudolph Mate discuss his latest assignment. (9) The camera-shy turned to avoid the flashbulbs of the cameraman.

Dave Savitt, who is associated with the Kling Film Enterprises, Inc., Chicago, is a new Associate Member of the American Society of Cinematographers.

★

Thomas Tutwiler, ASC, is in Caracas, Venezuela, shooting a 35mm production in Eastman Color for the President of that South American country. Tutwiler brought along a Mitchell and an Arriflex camera and a carload of Eastman Color negative.

★

Bob Roberts, ASC, brother of ASC member Irmin Roberts at Paramount studios, passed away last month in Buenos Aires where he had gone recently to resume his career as director of photography.

★

Arthur Arling, ASC, flew to India September 12 with a production department group from MGM for purpose of making exploratory survey of location sites for studio's forthcoming

(Continued on Page 486)

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"Life-like color," the ultimate in the reproduction of color film, is now available to all producers of 16mm motion pictures Now you can have your exposed film duplicated with perfect blending and balancing of tones Your release prints will have a sensitive living quality... surpassing anything you have ever seen in clarity

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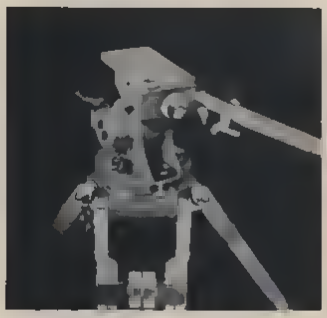


Pro-Cine Tripod

Florman & Babb, 70 West 45th St., New York 36, N. Y., announce a new, medium-weight tripod which incorporates many unique features, most important of which is the extremely smooth controlled pan and tilt movement of friction head. Weighing 14 lbs., tripod will accommodate following cameras: Auricon-Pro, Maurer, Cine Voice, Cine Special, Eyemo, Filmo, Arriflex, Camerette, and Bolex. List price of tripod is $135.00. Carrying case is $20.00 extra.

Optical Printer

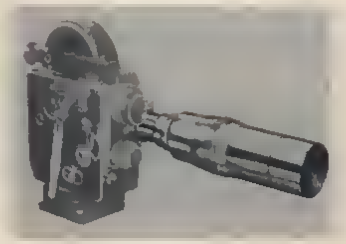
Motion Picture Printing Equipment Co., 8136 No. Lawndale Ave., Skokie, Ill., announces a new optical reduction printer. This Model 300 printer can be used for picture reduction printing from 35mm negative to 16mm positive, enlarging from 16mm negative to 35mm positive, and contact printing 16mm to 35mm films. Features include constant takeup, large lamphouse for 1000-w lamps, and provision for installation of automatic fade.

Mercer Film Patch

Ray Mercer & Co., 4241 Normal Ave., Hollywood 29, Calif., has stepped up production of the famous Mercer Film Patch, a valuable temporary film-joining clip used in the processing and editing of motion picture film. In use in Hollywood studios and film labs for over 25 years, Mercer Film Patch is now available for CinemaScope film. Product is available in stainless steel, celluloid, and durable white paper.

Extension Tube for Arriflex

A new extension tube for Arriflex 16mm and 35mm cameras is offered by Kadisch Camera & Sound Engr. Co., 500 West 52nd St., New York. Use of tube is recommended for ultra-closeup work such as micro and surgical photography. It is precision machined with tooled interior to prevent reflection. For further details and prices, write manufacturer direct.



9-inch Telephoto Lens

Century Photographic Equipment Co., 10427 Burbank Blvd., No. Hollywood, Calif., offers a new telephoto lens for 16mm cameras which is particularly adaptable to shooting scientific and wild-life movies. Tradenamed the Tele-Athenar, it has a focal length of 9", (230mm) and a rated speed of f/3.8. Light in weight, it requires no support. It may be focused as close as 15 feet, its iris stops down to f/22, it is coated and color-corrected.

Made in the U. S., the lens is supplied in standard "C" focusing mount. Price is $99.50.

Hi-Fidelity Mike

Shure Brothers, Inc., 225 West Huron, Chicago 10, Ill., announce their new Model 333 high fidelity studio microphone, a uni-directional microphone with the following features: extended frequency response (30-15,000 cps, plus or minus 2½ db; patented "Uniphase" system, small size and slim design. Complete technical data and price may be had by writing manufacturer direct.

Tape Comes on New Reel

Orradio Industries, Inc., Opelika, Alabama, announce that its Irish Green-Band professional magnetic recording tape is now being mounted on new-type 7-inch reels having a new, improved hub 2¼-inches in diameter.

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SMPTE To Convene In Hollywood

Society's 76th semi-annual convention opens in Los Angeles on October 18th.

RECENT TECHNICAL advances in the motion picture and television fields, which have greatly stimulated these industries during the year, are destined to make the forthcoming get-together of the Society of Motion Picture and Television Engineers one of the largest in the Society's history.

The S.M.P.T.E.'s 76 semi-annual convention will open at the Ambassador Hotel in Los Angeles on October 18th and will continue through October 24th.

Indicative of the increased activity is the sponsoring of an exhibit of manufacturers television and motion picture equipment.

Technical sessions will be held morning, afternoon and evening each day and several concurrent sessions have been scheduled to accommodate the many papers planned for delivery.

A luncheon get-together on Monday, October 18th, will serve to open the convention. The semi-annual banquet and dance will be held Wednesday evening, October 20th, at the Ambassador Hotel. Field trips to the color TV studios of CBS and NBC, and to the Moody Institute of Science, and the Paramount Studio theatre are scheduled.

Five awards for outstanding technical achievement by individuals are to be presented. They include the Samuel L. Warner Memorial Award, the David Sarnoff Gold Medal Award, the SMPTE Journal Award, the SMPTE Progress Medal, and the Society's Fellow Awards.

An extensive program of papers, discussions, and field trips is in preparation. Of these, the following subjects will be of interest to those in the motion picture industry:

PROGRAM—MOTION PICTURE SUBJECTS

Monday, October 18

9:30 A.M. Registration, Ambassador Hotel lobby. 12:30 P.M. Get-together luncheon, Cocoanut Grove. 3:00 P.M. Business meeting; 3:30 P.M. Color television. Ambassador Theatre.

Tuesday, October 19

9:30 A.M. Field Trip to NBC television studios. 8:00 P.M., Color Television Session, Academy Award Theatre. Sidney P. Solow and Edward H. Reichard of Consolidated Film Laboratories will deliver a paper on subject of "Some Laboratory Procedures in Preparing Television Prints in Black-and-white and Color from Eastman Color Negative."

Wednesday, October 20

10:00 A.M., Ambassador Theatre, discussion of the factors pertinent to obtaining magnetic-stripe sound tracks on 16mm and 35mm TV films.

Thursday, October 21

9:30 A.M. Field trip to Moody Institute of Science for study of high-speed cinematography.

10:00 A.M., Motion Picture Equipment session. Frank G. Back will present paper on "New Studio Zoomar Lens for 35mm Motion Picture Work." John D. Hayes, of Bausch & Lomb, will read paper on "CinemaScope Camera Lenses." D. C. Chambers and W. R. Holm of DuPont will present paper on "An Exploration of New Methods for Splicing Film."

2:00 P.M. High speed photography session. Also discussion of modern motion picture screens as applied to the new aspect ratios of film exhibition.

2:00 P.M.—Mr. R. Clark Jones of Polaroid Corp., will present paper on "A New Method of Describing and Measuring the Granularity of Photographic Materials."

8:00 P.M. Wide Screen Processes. An analysis of factors controlling image quality. Paramount Studio Theatre.

Friday, October 22

Webster Blake of Douglas Aircraft Corp. will present paper on "Simple Electronic Timing Device for High Speed Photography."

10:00 A.M. A general discussion of amateur motion picture photography at the Ambassador Theatre. Glenn E. Matthews and Raife G. Tarkington will present paper on "Early History of Motion Picture Film." C. R. Fordyce, J. M. Calhoun, and E. E. Moyer, of Eastman Kodak Co., Rochester, will present paper on "Shrinkage Behavior of Motion Picture Film."

A. J. Sant, M. C. Goddard, and O. E. Miller, of Eastman Kodak Co., will present paper on "A Light Meter for Printer Control."

Frank P. Hernfeld, Culver City, Calif., will present paper on "A System for Automatic Additive Printing and Scene Testing of Color Film."

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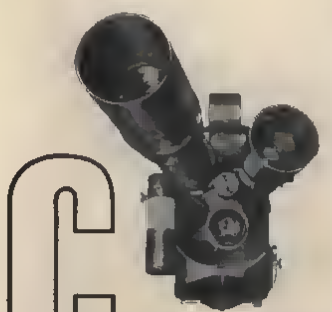

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letters

A.C. At Top of List

I am gathering a collection of photographs (stereo), descriptive brochures, and advertising material on motion picture cameras. I have quite a few such items to date, though there are still some I need.

Glad to see a "Letters" column in *American Cinematographer*. Besides being an amateur cinematographer, I am a magazine collector (I subscribe to 41 at present), and am familiar with everything from *Dick Tracy* to the *Proceedings of the (British) Society for Physical Research*. The one I value highest is the *American Cinematographer!*

Walter A Carrithers, Jr.
463 North Second St.,
Fresno 2, Calif.

Reads the Ads, Too!

Enclosed is my check for $3.00 for renewal of my subscription.

I want to tell you that all the material that your publication contains is always very important to me and the knowledge that I get from all the articles is a very good help to me. Also the information contained in the advertisements is of great importance to those of us who live south of the Border.

Vincente De Benedictis,
San Jose,
Costa Rica.

• *Mucho gracias, Senor De Benedictis!* —ED.

Tradelast For Loyal Griggs

I would like to take this opportunity of expressing to you the very great pleasure and enjoyment received from the reading of your publication. For many years it was my ambition to enter the film industry here and train to become a professional cinematographer, but it was not to be, although never for an instant has my sincere interest in this subject been relaxed. I have now to be content with substandard filming on 9.5mm stock.

I have the greatest admiration for the work of members of the A.S.C., and although he already will have received many congratulations from fellow workers, would you be kind enough to extend to director of photography Loyal Griggs my very great est admiration for his work in the production "Shane"? Never can I recall such exquisite photography, so technically excellent and so full of atmosphere in the very real sense. I was very greatly impressed and look forward with enthusiasm to his work on the new technique of VistaVision.

C. H. Couzens,
Sheffield.
England

Seconds The Motion

In the letters column of your August issue, I noted request of Jack Kane of Pittsburgh, Pa., for information on processing of amateur color film.

I stand with Jack on his request, but would like to expand it by requesting the names and addresses of all the manufacturers of the equipment necessary for this work as well as full data on the technique.

I would also request a series of articles describing the various color films presently available to the amateur.

Walter J. Young,
Syracuse University,
Syracuse, N. Y.

Film Lab Information

I should remain very thankful to you if you would send me the addresses of all the film laboratories which were mentioned in the recent article entitled "The Film Laboratory—Your Partner In Production," by Charles L. Anderson, which incidentally I found very interesting.

Dr. J. de Los Santos,
Vedado,
Havana, Cuba.

• *The addresses requested are being mailed to you.—ED.*

Pleased

I was very pleased to read "India's First Feature in Gevacolor" by Frederick Foster. This is the first time that I have read about an Indian film in an American magazine. I hope the film will be distributed in the U.S.A.

I am an artist from India and at present am carrying on some experiments in animation techniques at A.V. Center, Syracuse University.

I have always enjoyed reading *American Cinematographer*.

Kantilal Rathod,
Syracuse,
New York.

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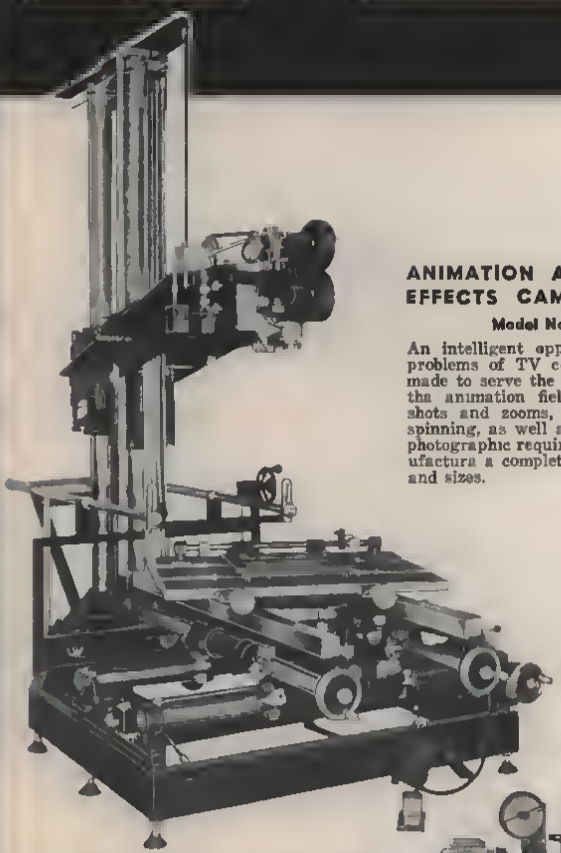

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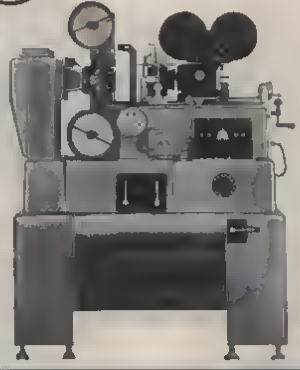

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WRITE FOR COMPLETE LITERATURE

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BULLETIN BOARD

(Continued from Page 478)

production to be filmed entirely in India. Assignment will take 8 weeks.

★

Hal Mohr, ASC, who directs the photography of the TV film series, "Life With Father," will be subject of full-page photo layout in October 18th issue of LIFE magazine

★

Mr. P. Chandr, head of Eastern Movies in New Delhi, India, was an ASC visitor last month. His company is leading film production company in New Delhi, turning out educational, documentary, and newsreel films for world consumption. The small-scale studio employs a staff of five cameramen.

★

Harry Squire, ASC, the original Cinerama cameraman, has begun a 'round the world tour with the tri-lensed Cinerama camera for the purpose of making another new feature titled "The Seven Wonders of the World." Teddy Tetzlaff will direct, and Lowell Thomas will produce and narrate the picture for Stanley Warner. Assignment will take six months

★

Len Roos, ASC, when not developing new magnetic sound equipment, devotes his spare time to his one and only hobby, the restoration of ancient automobiles. Recently his 1910 vintage Stearns, which he entered in recent Reno get-together of the Horseless Carriage Club of Nevada, won for him the First Place trophy awarded for the best restoration of a vintage car originally costing over $2,000

In photo above, Roos (left) is receiving trophy from William Harrah, secretary of the H.C.C. of Nevada.

★

Jack Bishop, ASC, head of the camera department at Paramount's Hollywood studios, took delivery of the first completely new Vista-Vision camera turned

(Continued on Page 524)

FAIRCHILD ANSWERS

6 Pointed Questions About PERSPECTA STEREOPHONIC SOUND

A FRANK DISCUSSION OF THE FACTS!

Q. *Is Perspecta Stereophonic Sound really here?*
A. It sure is! M-G-M, Paramount and Warners are releasing all future productions with Perspecta Sound. Other studios are following.

Q. *Will it be the industry standard for years to come?*
A. Yes, it will — because, from the producers' viewpoint, it's the *compatible* system — yet offers exhibitors the finest stereophonic sound at the lowest installation and operating cost.

Q. *How soon should theatre owners install it?*
A. The sooner, the better. All Loew's theatres are being equipped now and hundreds of others here and abroad have ordered! Be first in *your* community. Order now!

Q. *How many Fairchild Perspecta Integrators does a theatre need?*
A. Only *one!* A single Fairchild Perspecta Integrator serves *all* projectors in a booth and controls the sound through any three-channel sound system of standard-make.

Q. *What about costs and installation time?*
A. The Fairchild Perspecta Integrator costs $990. A complete installation can be made in less than a day — without loss of showing time and, incidentally, without continued maintenance and replacement of magnetic heads!

Q. *Where do I go to find out more?*
A. See your dealer or — call — write — or wire Fairchild. We understand exhibitors' problems—can answer your questions immediately.

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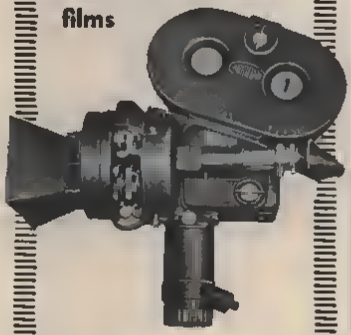

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INDUSTRY NEWS

Technicolor Credits, such as "Color by Technicolor" and "Print by Technicolor" are explained in a leaflet released last month by Technicolor Motion Picture Corp.

According to this informative announcement, "the credit phrase 'Color by Technicolor' is used for motion pictures in color which have been controlled from the developing of the original negative or taking film to the manufacture of the positive release prints by a Technicolor company.

"In brief, the credit is 'Color by Technicolor' if the original negative is developed, and the release prints made by Technicolor, regardless of the type of original negative used or the method of making the release prints

"The credit phrase 'Print by Technicolor' is used for motion pictures in color which are photographed on negative or taking film other than that developed by Technicolor but which are, however, controlled by Technicolor through some of the stages subsequent to photography, *always* including manufacture of the positive release prints.

"The credit is 'Print by Technicolor' if the original is not developed by Technicolor, but the release prints are made by Technicolor."

"Use of proper Technicolor credits," the company emphasizes, "is solicited not only on theatre marquees, but in all forms of publicity and advertising, including newspapers, magazines, posters, radio and television."

★

Anti-mildew compounds are harmful to color films, according to Eastman Kodak Company, which recently cautioned that a number of color films have been processed which had been spoiled by exposure to paraformaldehyde, an ingredient in most anti-mildew preparations.

The first effect on Kodachrome film is a color shift toward green, with increased graininess. In later stages, the film becomes very dense, often with a dark red appearance. Kodacolor negatives so affected have a milky translucent appearance. When printable, the prints are off color Paraformaldehyde works in from the edges of the film and has the effect of hardening the gelatine of the film emulsion, therefore interfering seriously with the processing.

Typical exposure to this chemical occurs when a loaded cine or still camera is put in a clothes closet in which a bag of anti-mildew compound has been hung. Even when an empty camera has been exposed to this vapor, enough of the vapor can stay in the camera to affect the film.

Unopened packages of color film, says Eastman Kodak Company, are sufficiently vapor-tight so that such precautions are unnecessary in ordinary circumstances.

★

Rochester, New York, observed the 100th Anniversary of the birth of one of its foremost inventors on September 26th.

He is Edward Bausch, who 80 years ago pioneered in the manufacture of low-cost microscopes for scientists and medical students throughout the world. The company since has become one of the leading suppliers of lenses and optical elements used in the motion picture industry. The company's most recent noteworthy achievement was the re-engineering of the CinemaScope lens, aided by 20th Century-Fox engineers.

★

Invitations have been extended by the Screen Producers Guild to 104 American colleges and universities to participate in the Guild's Second Annual Intercollegiate Awards. The competition is for the best amateur motion picture conceived and created in the colleges and universities of America

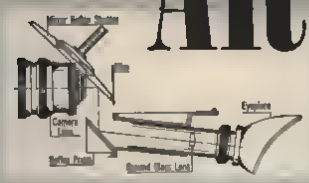
Any student film produced or completed during the year of 1954 is eligible for entry. November 30, 1954, has been set for the submission of the application, and December 31, 1954, for the film itself.

A special viewing committee composed of members of the SPG will select and nominate films for the awards.

Last year the SPG Gold Award Medallion was presented to the University of Southern California, honoring Herbert Skoble, student director, who produced "Let Me See."

The Guild's Silver Award was presented to University of California at Los Angeles for "Treasure in a Garbage Can," and its Bronze Award to University of Minnesota for "Art of Seeing." END

the ARRIFLEX 16



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In this way, the Arriflex 16 Mirror Reflex system makes all of the light transmitted by the lens available to both the finder and the film, intermittently. The image viewed is brilliant uninverted and right side-up It is seen, magnified 10 times, through a highly corrected, adjustable eyepiece There is no parallax and no need for special finders

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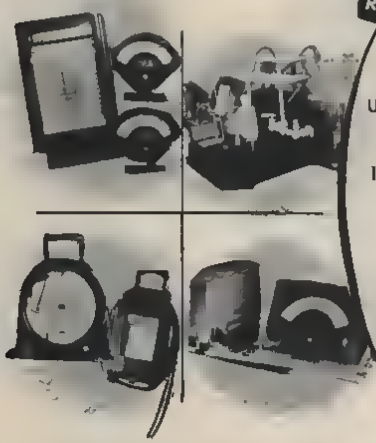

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available to readers

DuPont Film Data

A handy reference folder of technical data on DuPont professional motion picture films is available from the company's Photo Products Department. Wilmington 98, Delaware, and from its eight district offices.

Attractively printed in red and black, the folder contains sensitometric and processing data for Du Pont's negative, soundrecording, release positive, duplicating, and special purpose cine films

The data sheets are punched for use in standard three-ring notebooks.

District offices are located in Boston, New York, Philadelphia, Atlanta, Dallas, Cleveland, Chicago, and Hollywood.

Light on Indoor Filming

A new booklet of interest to the amateur cine photographer titled "Indoor Photos Made Easy," has been published by the Smith-Victor Corp., Griffith, Indiana, makers of portable lighting equipment utilizing photoflood lamps.

A companion booklet to "Indoor Movies Made Easy," which was issued earlier by the company, newest volume describes in detail the procedure and equipment required by the beginner as well as advanced amateur.

Various lighting systems are discussed and tips given on how to achieve various lighting effects Copies are free for the asking from dealers or from the company direct.

Film Processing

A booklet describing the full scope of services offered by Precision Film Laboratories, Inc., 21 West 46th St, New York 36, N. Y., is available from the company to those making request on their business letterhead.

For Magnetic Recorders

A booklet explaining the use of sound striping of motion picture films and describing the Magna-Striping service offered by the company, is offered by Reeves Soundcraft Corp., 10 East 52nd St., New York 22, N Y

Booklet is a primer for those who are interested in recording magnetic sound on their own 16mm films, and gives detailed information on step by step procedure. Copies are free on request.

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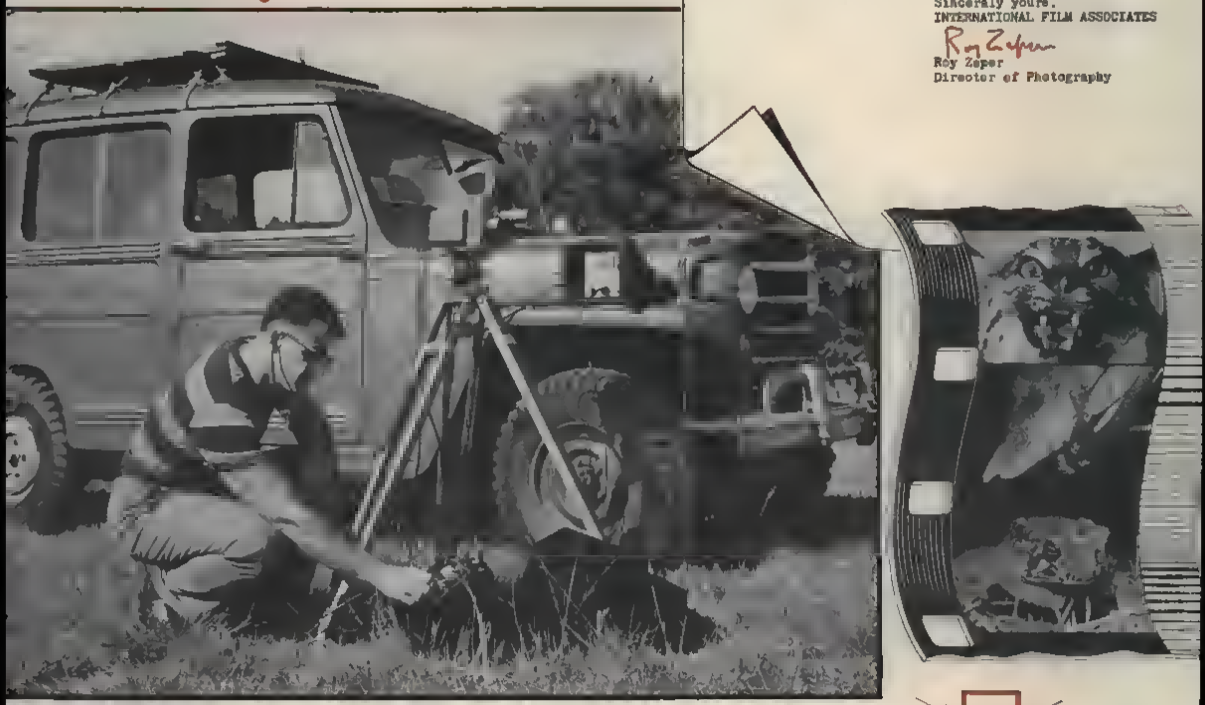

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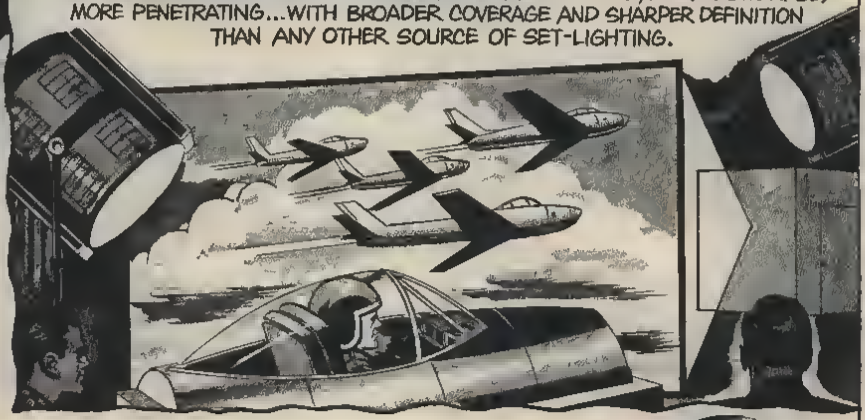

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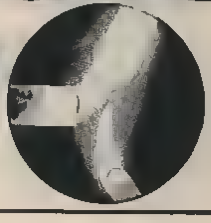

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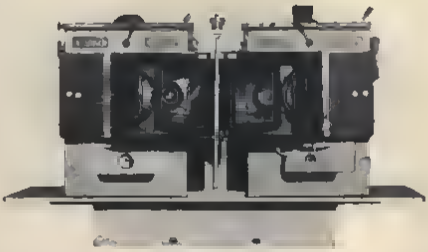

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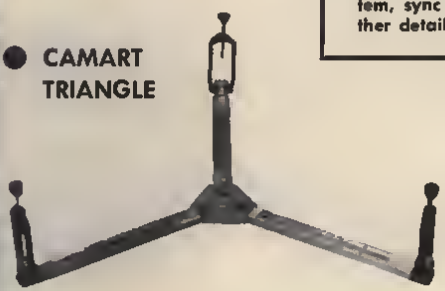

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Todd-AO—Newest Wide-screen System

"Oklahomo," now neoring completion, marks the debut of this super-wide-screen system that emplays completely new cameras that were engineered especially to take the wide-angle Todd-AO lenses and 65mm negative.

By ARTHUR ROWAN

TODD-AO camera, showing the 128 degree "bogeye" lens and the companion wide-angle viewfinder. Camera is not much larger than a Mitchell and is about the same weight, due to use of new type fiberglass insulation in blimp. Camera uses 65mm negative.

ABOVE is clip of Todd-AO 65mm film, and below, a clip of standard 35mm film for comparison. The Todd-AO film picture area is 3½ times that of the 35mm film. The projected Todd-AO picture has an aspect ratio of 2 to 1. Regular release prints are made on 70mm film to accommodate the seven sound tracks.

TODD-AO is a term being heard and seen with increasing frequency. It stands for the newest of wide-screen motion picture processes. The term is a combination of the name of Michael Todd, whose vision inspired the development of the process, and the initials of the American Optical Company whose research staff of more than 100 of the nation's top engineers and scientists developed it.

Todd-AO is not merely wide-screen. It is *large* screen and it is wide angle. Todd-AO motion pictures are photographed on film that is 65mm in width—wider than the conventional 35mm film used in all other wide-film processes. Both negative and prints are made on Eastman Color film, which is processed by Consolidated Film Laboratories at Fort Lee, N.J.

On the same order as Cinerama, but vastly superior, since it is photographed with only one camera and projected with only one machine instead of three, Todd-AO gives the spectator a terrific sense of audience participation.

Aspect ratio of Todd-AO is 2-1, and projection is on a curved screen with a high-reflectance surface. A typical size would be 51 feet across by 25 feet in height, with a curve 13 feet deep at the center. Actual screen length along the curve would be 65 feet.

A new high-fidelity stereophonic sound system is employed that involves seven tracks—six sound tracks plus one control track.

Completely new cameras had to be built for the system. They are approximately the size of a Mitchell, but have a slightly larger head and wider film magazines to accommodate

the larger 65mm negative. The wider film allows greater flexibility and degree of clarity. The 65mm picture frame is 3½ times the area of the standard 35mm frame. Where there are four sprocket holes on either side of the conventional 35mm film frame, the 65mm Todd-AO frame has five sprocket holes. Another feature is the higher speed of film travel. Camera speed has been stepped up from the conventional 24 frames per second to thirty, which tends to smooth out action on the larger screen.

As with conventional motion picture cameras, the Todd-AO takes a range of lenses of different sizes; but unlike the lenses used on 35mm motion picture cameras, which vary in focal length, the Todd-AO lenses are classified according to the angle of coverage. Thus the Todd-AO have a selection of four lenses that cover everything from a closeup to distant scenic shots. These range from the huge 128-degree "bugeye" wide-angle lens—socalled because of its enormous front element—down through the 64, 48, and 37 degree (angle of coverage) lenses.

At present two cameras are required in shooting Todd-AO productions—one having the 128 degree "bugeye" lens permanently attached, and the other designed to take the 64, 48, and 37 degree lenses interchangeably. The company presently is building cameras that will take all the Todd-AO lenses interchangeably, including the "bugeye," thus eliminating the need for two or more cameras for each setup.

Recently, the Todd-AO process was demonstrated for the industry and press at Metro-Goldwyn-Mayer studios in Culver City, where are quartered the Rodgers & Hammerstein company, producers of "Oklahoma"—initial production in the Todd-AO process. Test footage photographed by Robert Surtees, ASC, and Harry Stradling, ASC, was screened which demonstrated the results obtained with the four different Todd-AO lenses. Of particular interest was the way both cameramen had adapted the 48 degree lens for closeups in dramatic scenes. The same was true in the use of the 128 degree "bugeye" lens for exteriors. The scope of coverage of this lens, incidentally, is so great that cameraman and assistants must stand well back of the front plane of the camera when shooting in order not to be included in the scene.

ONE OF THE unique camera mountings employed by Floyd Crosby, ASC, who directed photography of the second unit of the initial Todd-AO production, "Oklahoma." Here "bugeye" lens was used on camera to make a running shot from a moving locomotive on a rail line near Nogales, Arizona.

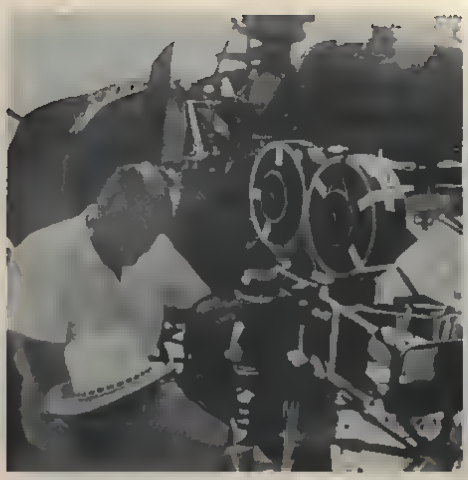
All the lenses have a short, sharp vanishing point, and the depth of field is very shallow. This means that the assistant cameraman really has to be on his toes when moving crane and dolly shots are being made with Todd-AO cameras.

According to Surtees, who is directing the photography of "Oklahoma," Todd-AO is a much better approach to wide-screen film production and exhibition than any other large scope process, because of the overall larger negative area of the Todd-AO 65mm film. Moreover, he says, that by projecting prints made on 65mm film a far superior picture quality results on the screen.

"From the standpoint of optics alone," Surtees said, "Todd-AO is a superior picture process. The proportion of the screened image is better, too. In short, Todd-AO is the epitome of perfection for the director of photography. From the point of composition Todd-AO presents a much better format—one that affords greater compositional latitude for the cameraman and enables him to

(Continued On Next Page)

TODD-AO camera on location at Nogales, Arizona, where much of "Oklahoma" was shot. Director of Photography Robert Surtees, ASC, at left of camera and wearing wide-brimmed hat, spent many months in testing the Todd-AO equipment and making pre-production camera tests.



LOCATION filming for "Oklahoma" involved use of Todd-AO cameras on a wide array of vehicles for moving camera shots. Here camera, mounted on a helicopter, is being given final check by operator Robert Moreno.

FOR A LOW angle running shot, the Todd-AO camera was mounted as shown here on a location camera car. Camera was focused beneath horse-drawn carriage at right to gain special effect shot through legs of the running horses. Floyd Crosby, ASC, directed the 2nd Unit photography.

do a great many things pictorially that he has never been able to do in 35mm with the 3 by 4 format."

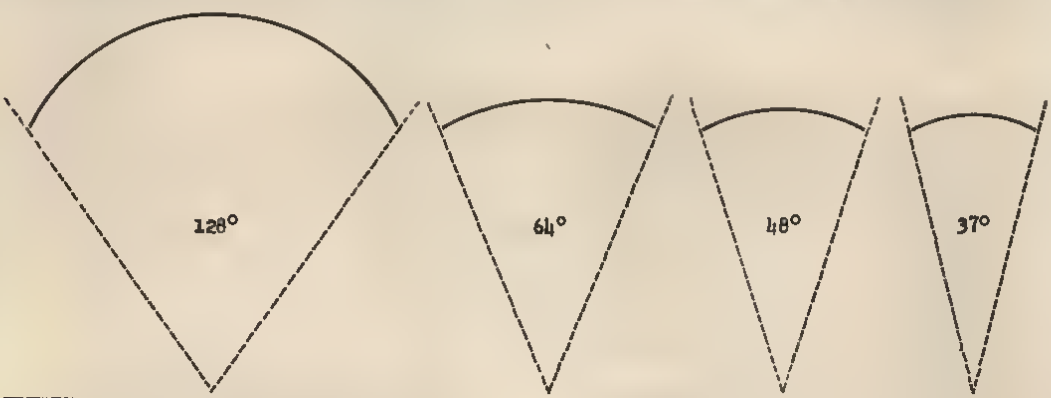
"With Todd AO," Surtees continued, "we don't have to work so close to the players as when shooting with 35mm cameras. We have to be especially careful how players will look on the screen with relation to the larger screen size, however, keeping the 'giant' effect to a minimum. Big closeups are better in Todd-AO, we don't have to worry about space at the sides as in the case with CinemaScope. In closeup and medium shot compositions, we never put a person dead-center in the scene. Also, we avoid panning with the movement of the players, but allow the players to move instead."

Todd-AO gives the spectator more of the feeling of participation—of actually being on the scene—perhaps, than any other wide-screen process. The objectional feature of the three panels that exists in Cinerama, which cannot be exactly synchronized (or at least not to date) and therefore results in jumping action and distortion, is naturally not present in Todd-AO. The picture is one single unit as the reader may observe from the reproduction of the clip of Todd-AO film on page 494.

Except for one or two things, Todd-AO photographic technique is little different from conventional 35mm. The differences lie mainly in the technical operations of the assistant cameraman and the operator. For obvious reasons, panning must be held to a minimum. The cameraman must know precisely the optical limits of each of the four Todd-AO lenses—know what they can and cannot do.

Any "across-the-screen" action must be photographed very carefully if not avoided entirely, because of the rapidly changing speed of travel which moving objects or players seem to assume in cross-screen action when filmed with the wide-angle Todd-AO lenses. A running

(Continued on Page 526)



ABOVE DIAGRAMS illustrate the angle of coverage of the four Todd-AO lenses. Unlike the lenses used on standard 35mm cameras, which vary in focal length, the Todd-AO lenses are classified according to angle of coverage. Depth of field is very shallow.

How many blocks? 6 or 7? *Appearances can be deceiving, but the good appearance of a Precision print is not an optical illusion. Immediately apparent are the results of Precision-quality processing.*

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THE MULTIPLE OR "GANG" synchronizer is an essential tool in the process of editing "A" and "B" rolls. As shown here, the "A" and "B" film strips enter the synchronizer from the right, are locked in sync and remain so until editing is completed.

However, most 16mm release prints, particularly those in Kodachrome, are made directly from the camera "original" with a continuous contact printer. This direct printing procedure, involving only one transfer step or "generation," results in release prints having better characteristics than prints made from an intermediate "master." Where dissolves and other effects are desired in these prints, they are printed in during the printing process from the original scenes assembled for "A and B" handling.

In typical 16mm editing procedure, a work print usually is marked with a grease pencil at the points where effects are desired. Sometimes little markers made of heavy white paper known as Mercer Film Patches are employed. These have tabs which fit into the sprocket holes of the film, and are removed easily during the printing process. A crayon or grease pencil is used when certain symbols are to be marked on the film, indicating the type of effect that is to be inserted at a given point. This is indicated on line 1 in the charts shown in Figs. 1 and 2.

When matching the original scenes to the edited work print, the "A and B"

How To Edit 16mm "A" and "B" Rolls

The procedure for preparing 16mm films for the addition of fades, dissolves, and other optical effects.

By JOHN FORBES

IN PROFESSIONAL 16MM production, as with 35mm optical effects are invariably made by the laboratory at the time of making the release prints. To facilitate this film editors employ what is known as the "A and B rolls" procedure. This is a system of cutting in which the edited material is assembled on two or more "rolls" or reels instead of one, and enables the laboratory to add to the release print or duplicate negative such effects as fades, lap dissolves, superimposures, etc. How this is done will be explained here.

The 35mm special effects editor uses a similar method when preparing scenes for optical effects. Common 35mm practice is to select two scenes between which an effect is desired, prepare these "A and B," and by the use of an optical single-frame printer, a new negative is made with the desired effect printed in

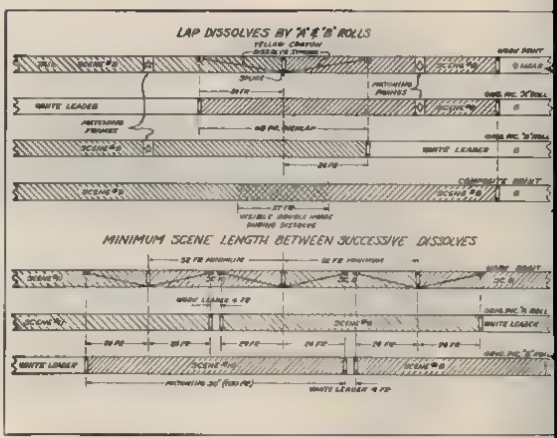


FIG 1—This chart shows method of marking and identifying "A" and "B" films where lap-dissolves are to be made

roll method requires the use of a multi-channel or "gang" synchronizer, such as that shown in the photo. Three channels are employed. With the work print head sync mark established in one channel of the synchronizer, the leaders of rolls "A" and "B" with corresponding sync marks are locked in place directly opposite in the two adjoining channels.

From this point, you proceed as follows: Attach the first original scene, or title, to the leader on the "A" roll, so that it's action and edge numbers, if any, match the work print scene while passing through the synchronizer (See lines 1, 2 and 3, Fig. 1). Using three take up reels, with white leader only on the "B" roll at first, roll through the synchronizer, matching and attaching each successive scene to the "A" roll, until a crayon symbol appears on the work print indicating an effect, such as a dissolve for instance, is to be processed and inserted. (See line 1, Fig. 1).

Where the two work print scenes are spliced, do *not* cut off the outgoing original scene. Allow it to extend 24 frames beyond the work print splice (Line 2, Fig. 1). Now, match the incoming original scene to the work print, but instead of cutting it off opposite the work print splice, extend it 24 frames to precede the work print splice, cutting off the leader accordingly. (Line 3, Fig. 1).

This brings up the important point of making sure to *cut out of the work print*, when editing, the 48 frames for each dissolve, thus insuring that the original is long enough to extend the required 24 frames *each way* from the work print splice. This dissolve "switch-over" "A" roll to "B" roll results in a 48 frame overlap of the two scenes, opposite the work print symbol. (Lines 1, 2, and 3—Fig. 1).

Now proceed to match and attach successive scenes to the "B" roll with the white leader now continuing on the "A" roll. When the next dissolve symbol appears on the work-print, switch over again to the "A" roll with the same overlap of 48 frames as before. Continue this procedure for the entire reel, so that some original scenes are on the "A" roll, others on the "B" roll, with white leader filling out the opposite roll. Hence a 400 foot reel of work print will be "matched" with two rolls ("A" and "B") of original scenes.

In making the release print, first the "A" roll is printed the full length, but the printer light is cued so that exposure is made only in the sections where the scenes are assembled, the light source fading out where leader is in the roll. Then the roll of partially exposed duplicating film is rewound, and threaded up again to the same punched starting sync mark as used when printing the "A" roll scenes. Then, the "B" roll is threaded into the printer, in contact with the roll of duplicating film, and the "B" roll scenes are printed. This time, the printer light fades on in order to print the "B" roll scenes in those areas of the roll of duplicating film where no exposure was made over the leader portions when previously printing from the "A" roll. Where the 48-frame dissolve overlaps occur, one scene fades out while the next scene is appearing. This coming and going double exposure, achieved by overlapping two fades, results in the dissolve effect planned.

Fades between scenes can be printed in two ways: first, by switching over from "A" roll to "B" roll. (Lines 2 and 3, Fig. 2). This assembly method is advisable, as it clearly indicates to the printer that a fade is planned, and also, it enables a variable length of all-black in the print, between the fade-out and fade-in. (Lines 5 to 8, Fig. 2). With the second fade method (Lines 1 and 2, Fig. 3), scenes on the same roll can be cued to fade without switching over "A" to "B." This requires advising the laboratory that a fade is desired usually indicated by temporarily attaching a piece of tape across the splice between the two original scenes, with the word "fade" on the tape. The first method is simple and variable.

Several "tricks" are possible when using the "A" and "B" roll method. So that a title can be printed or super-imposed over an action background, for instance, a title with white letters over a black background can be cut into the leader in the roll opposite the scene over which the title is to be printed. White lettered titles are desirable, but the letters should be positioned to occur over a darker part of the scene, for proper contrast or legibility. Brilliant colored letters can be used, depending upon the additive effect when combined with whatever color is predominant in the section of the scene over which the title is to be printed. Other superimposures are possible, such as arrows appearing to emphasize a situation within a scene in instruction or training films, etc.

Another alternative in the superimposing title procedure is to splice about 30 frames of black leader to the head of the title so that the printer can fade in over the black leader, thus causing the title to cut-in instead of fade-in. With a little

(Continued on Page 524)

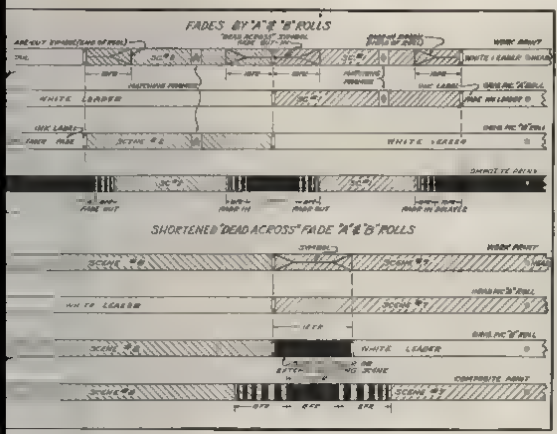


FIG. 2—Symbols and marking procedure for editing "A" and "B" film rolls for fades, using work print and original "A" and "B" rolls

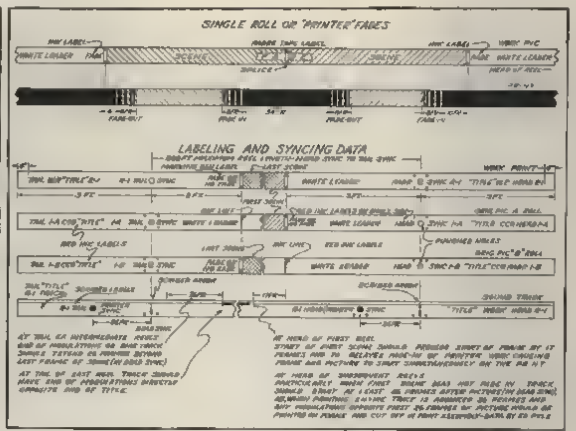
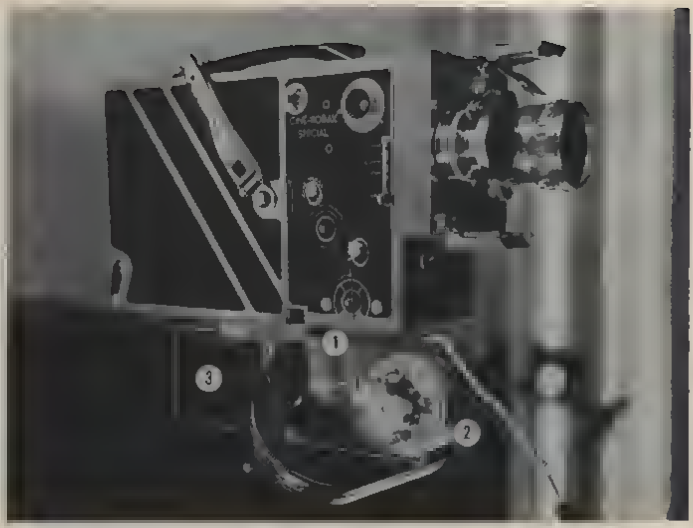


FIG. 3—Guide to editing 16mm negative for printer fades, with labeling and syncing data—Charts courtesy Telefilm Studios, Inc



CINE SPECIAL camera equipped with author's remote control for use in stop-motion photography. Shown is hookup wire (1) leading from single-frame release button on camera to lever of solenoid (2) which is mounted on plastic panel (3) attached to camera mount. Solenoid is powered by 6-volt lantern battery (not shown).

A Remote Control For 16mm Stop-motion Photography

By JOHN HOKE

IN SINGLE-FRAME cinematography with a 16mm camera, one important precaution that must be observed is that the camera must never move in its fixed position during the cycle of photography. If it is inadvertently moved the slightest amount, there will be a noticeable jump on the screen at that point in the sequence of action. And despite all the precautions that one can take in the way of locking the camera securely on a rigid tripod or other support, a 16mm camera used in this type of work sometimes is easily moved when it is operated by hand. The answer to this problem, of course, is to start and stop the camera by some method of remote control.

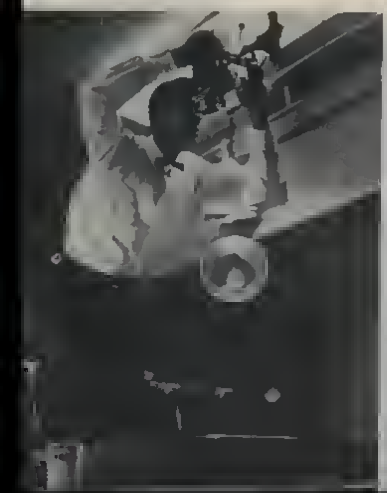
Many of the 16mm cameras now available provide for single-frame exposure, and therefore simplify the installation of a remote-control device. One of these is the Cine Kodak-Special. The control which the author devised for this camera is shown in the photo at the top of this page. Here tripping the single-frame exposure button is accomplished by use of a lever solenoid (2) connected to the camera starting button by a length of wire (1).

In this application, the solenoid unit is mounted on a rectangular piece of clear plastic 1/8th inch in thickness (3). It is held in place by means of a C-clamp, which secures it firmly to the camera mount—in this case a metal tripod. Power to operate the solenoid is furnished by a 6-volt lantern battery. Extending from the camera is a generous length of cord having a push button at the end. This is shown in the left hand of the girl in the photograph at right, below.

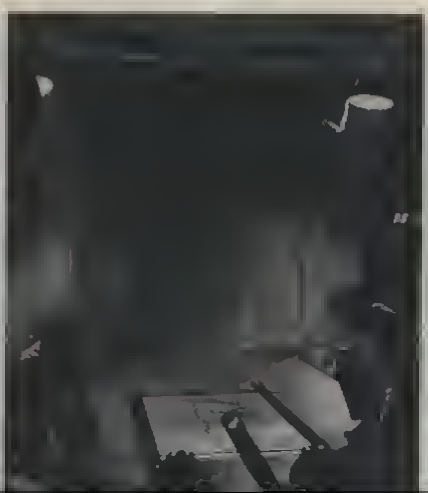
While the photo above shows the use of a rectangular piece of plastic for the solenoid mount, the needs of individual

(Continued on Page 520)

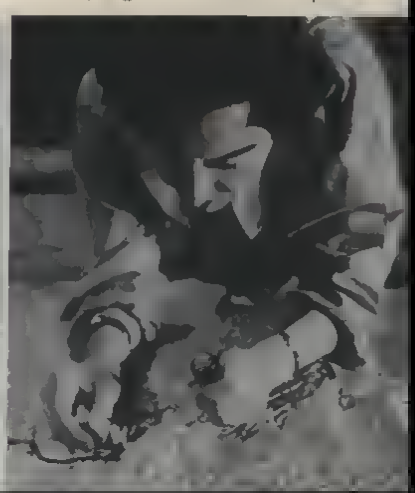
AUTHOR adjusts camera for position, focus, etc., before starting to shoot. Here camera is mounted overhead on Grafflarger stand.



PRODUCTION staff at work photographing stop-motion sequence. Subject is map on floor. Girl at left operates camera remote control.



CAMERA control button in hand, operator moves "line" on map fraction of an inch before exposing next frame of film in sequence.



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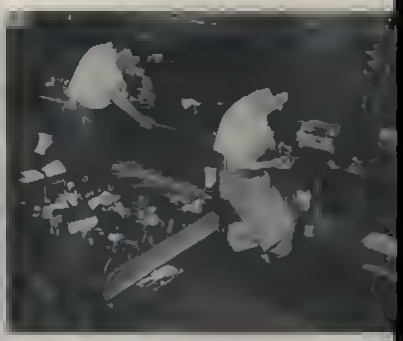
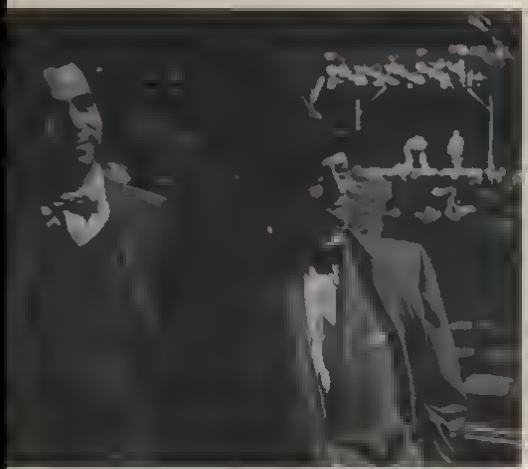


CAMERA Equipment Co. maintains a consulting service and engineering staff to serve patrons in need of special equipment.

Equipment Source For Film Producers

Camera Equipment Company's rental service makes it unnecessary for independent film producers to maintain large inventories of equipment.

By FREDERICK FOSTER



FRANK ZUCKER (right), head of Camera Equipment Co., and son Burton look on as cameramen (not shown) make ready to film a recent Marciano-Charles title bout, for which filming assignment C E Co furnished Mitchell cameras and other equipment

THE PRODUCTION of motion pictures involves the use of equipment that is as varied as it is voluminous. In Hollywood, each studio is fairly independent of the equipment renter, owning outright equipment valued in the millions of dollars. Elsewhere, however, most film producers rely on suppliers of moture picture equipment to provide their day-to-day needs in everything from splicers to Mitchell cameras. One of these is Camera Equipment Company, New York City.

"Sales-Service Rentals" is the laconic three point statement which Camera Equipment Company carries in all its advertising and promotion. It may not have much significance to the mythical Martian, but it speaks volumes to practically every professional producer, director and cameraman engaged in the production of theatrical television, commercial, industrial, educational and documentary films.

Under the heading of "Sales" Camera Equipment is known far and wide as both distributor and manufacturer of perhaps the world's largest and most comprehensive assortment of motion picture equipment. The professional knows that whatever his requirements—a tripod, dolly, mike boom, editing machine, geared or friction heads, viewfinder, film viewer or the thousand and one other devices indigenous to his craft—Camera Equipment either has it in stock or will get it promptly.

Under the heading of "Service and Rentals" Camera Equipment offers such unique dependability—day and night—that many professionals regard it as an indispensable adjunct to their own operations. What in many enterprises would be regarded as "emergency" is taken in

THE COMPANY has available set lighting equipment of every available type and make. Each piece is rigidly inspected before rented or sold

routine stride by Camera Equipment Company.

For example, a producer gets a rush assignment to photograph in color the tribal ceremonies of Crow Indians as they induct an important business executive into the tribe. A vast amount of equipment, plus cameras, have to be in Billings, Montana, in two days. Notwithstanding that this is the day before Christmas, Camera Equipment assembles an emergency crew and airships the material in time.

A Hollywood production company making a film on the Brooklyn and New Jersey waterfront rents an enormous amount of equipment. The uninitiated sometimes asks why a large motion picture studio, with ample equipment of its own, resorts to renting from Camera Equipment Company when it is on a remote location. The answer lies in the magic word "service." When hundreds of thousands of dollars are on the line, producers find it false economy to risk taking pictures with inaccurate cameras. Every camera which goes out on rental —for either a single day or months at a time—is given a thorough shakedown and overhauling to make sure its calibration and working parts are 100% efficient before it is rented out again to the next user.

But Camera Equipment's daily routine is far from routine. For instance, the Glenn L. Martin aircraft company recently was engaged in a top secret assignment for the Government. Photography connected with the project called for very high magnification in both lenses and viewfinders. The Martin Company tried everywhere, but such equipment was nowhere available. Camera Equipment Company didn't have it

(Continued on Page 518)

Cameramen Are A Breed Apart

By EARL L. CLARK

Director, Associated Screen Studios, Montreal, Canada

SCRATCH A CINEMATOGRAPHER and invariably you will find a creature of odd habit and uncertain habitat—an extrovert when grinding out film and an introvert when without a camera, an individual with the soul of a poet and the mien of a slave driver. Yes, cameramen are a breed apart—particularly those lens artisians of the newsreel, the documentary and the special subject film.

This contrary by-product of man's need to see accepts his bizarre assignments with a stoical calm that belies any semblance of emotion. Yet the true camera fiend will go into ecstacies over the sight of sunlight pearling early morning heads of dew.

He will remember a depth of focus chart to the last inch and forget to remove his lens cap for the millenium. He will race traffic lights for fractional seconds to sit all day in a tree for bird pictures. Although he abhors such simple labors as camera reports, he will climb mountains, ascend towers and perch on precarious vantage points for a better angle. Normally law-abiding, he can invent the most ingenious reasons for entering prohibited areas.

In his contact with fellow men, the cinematographer retains his contradictory characteristics. He will loan valuable equipment to a needy competitor and steal his ideas with the same dispatch. He will spend patient hours wooing the confidence of little children and use his press pass to push, scrounge and intimidate—although he considers assault and battery unbecoming to men of distinction!

This, then, is the *unpredictable* tribe of lensmen. It is not certain whether the profession created them or whether their idiosyncrasies are of their own making; but whatever the school of thought, the problems, exploits and humor of the brotherhood recounted below probably will touch a nostalgic note in the hearts of veteran cinematographers. The identities will remain anonymous, but their brand of humor may offer a clue to some readers. Some of this humor is as objective as an exploding flashbulb.

Before filming a sequence at a Quebec asylum, the camera crew was lectured on the treatment of inmates. It was emphasized that many patients were suffering from fixation of mind, they understood little outside of one fixed orbit. Since the best curative was contentment, these people were humored and allowed to do only that work which they liked. One man swept floors day after day. Another washed automobiles from morning until night. The doctors and nurses would line up their cars, bumper to bumper, for his benefit.

The camera crew was impressed by the lecture—but hardly as expected! One member decided that, when he became eligible for entry to the institution, he was going to have a phobia for filming nudes. Another was going to have a penchant for rocking-chairs. But the cameraman was the one most impressed. Each day thereafter he placed his car in line for the free auto wash!

This "fixed idea" ailment was responsible for a remarkable scene—an incongrous picture that bespoke both humor and tragedy. It was desired to illustrate the healthy outdoor activities of mental patients. Twelve inmates were to be filmed at their normal work in a hay field. Since the regular haymakers were miles away in another field, a dozen gardeners were substituted and sent to get the necessary pitchforks.

But pitchforks were unknown implements to these men of the garden. They selected, instead, tools familiar to their hands. The effect in the field was startling. One man chopped at the hay with an axe. Another sprinkled it with a watering can. A third swept up the hay with a broom. A hoe—a spade—garden clippers—twelve men working with familiar tools at an unfamiliar job.

There was genuine pathos in the scene. But it took the cameraman of the crew to recapture normal perspective with the crack:

"What's the matter with you guys? You nuts—or something?"

And so, when the camera crew left the asylum, there may have been more truth than was intended in their parting remark, "Guess the inmates can get back to normal now. The crazy cameramen have left."

Sometimes, the rapier thrust of photographic humor is parried and returned with interest. Halifax citizens are notoriously sensitive to adverse criticism of their home town. They look upon their cobble-stone streets, antique landmarks and iron-gated parks as century-old evidence of the important role their city plays as Canada's eastern doorstep. This nostalgic pride is nowhere more evident than in the old salts who frequent the waterfront to reminisce about

(Continued on Page 512)

SHOOTING wide-screen scenic film of Chattanooga, Tenn., with the new Bell & Howell FilmoRama CinemaScope-type lens is James E. Webster (left) and Gene A. Carr of Continental Productions. The same FilmoRama lens is also used for projection.

THE FILMORAMA lens mounted on a Bell & Howell "70" camera. It may also be mounted on other makes of 16mm cameras. For Filmo cameras, a special companion wide-angle viewfinder is available

FilmoRama—CinemaScope In 16mm

Bell & Howell Co. introduces new 16mm anamorphic lens.

By LEIGH ALLEN

IT IS NOW POSSIBLE to shoot CinemaScope movies in 16mm. A new, wide-screen system for 16mm film producers has been developed by Bell & Howell Company, Chicago. Trade-named FilmoRama, it is patterned after 20th Century-Fox's 35mm CinemaScope and now makes possible the production of 16mm films in the CinemaScope format by makers of amateur, industrial and educational motion pictures. It consists of a single anamorphic or "squeeze" lens attachment, which is used for both photography and projection.

The FilmoRama lens attachment, pictured above, can be used on all existing 16mm cameras; its use is not confined to the Filmo camera alone. A universal bracket, also shown in the photograph, makes it easy to mount the lens before the camera. For use with the Bell & Howell "70" model cameras, a special wide-screen viewfinder is available as extra equipment.

The FilmoRama lens has six elements which provide extreme sharpness. Each individual lens is precision collimated for crisp definition to full corners and edges, according to Bell & Howell. The company claims it is unequalled for light transmission, all air surfaces are magnesium fluoride hard coated. Color banding and fringing is said to be entirely eliminated by full correction of all color aberrations.

When FilmoRama was first introduced, it was expected that its chief use would be in the production of sales and industrial films, and that its use in projection would find a ready market among many foreign theatrical film exhibitors who screen

(Continued on Page 521)

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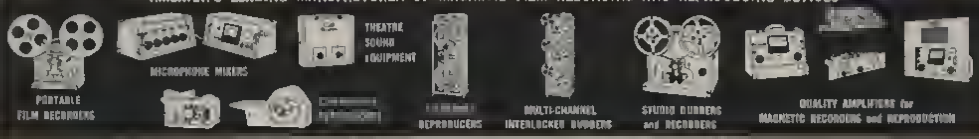

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The Importance Of Variable Camera Speeds

Knowing how to use them to odvontoge will make you a better cine photographer.

By ALVIN D ROE

ABOVE CHART will enable you to determine quickly at what stop to set lens, when changing camera speed from normal 16fps. (Chart reproduced courtesy Jashson Rose)

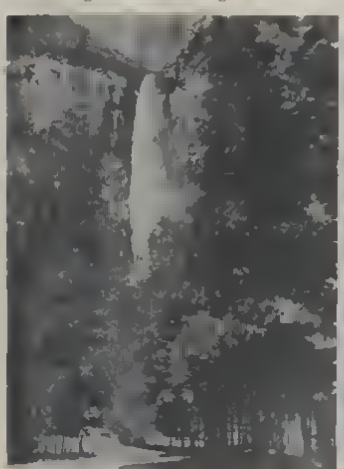
UNLIKE the professional cinematographer whose daily work is pretty much confined to the routine of sound stage shooting, the amateur cine photographer works in a more versatile field. His is more of a creative camera work. Like some musicians, he "makes it up as he goes along." Naturally, the amateur must be versatile, must be able to improvise, and to cope with a wide range of conditions and situations. This requires a wide knowledge of cinematographic technique.

One of the important things he should know is the value of using, when the occasion demands, the range of camera speeds which his camera provides—and most cine cameras do provide two or more, as a rule. Yet, many owners of cine cameras have yet to explore the interesting if not amusing effects to be achieved by shooting pictures at 8, 32, or 64 frames per second, instead of the normal 16 or 24.

For example, a speed of eight frames per second—half normal speed—will compress the time required for a given action by making the motion appear twice as fast as normal. On the other hand, a higher speed, such as thirty-two frames per second, slows movement in the scene and makes the time element twice as long.

The speed at which the camera is operating not only affects the time element on the screen, but also affects the exposure time for each frame of film passing through the camera. The eight frames per second half-speed is more often used to gain exposure time than for some special effect in the action. For example, take a filmer's camera that exposes film at normal speed at 1/30th of a second His lens is f/2.9 and he wants to shoot a well-lighted street at night using Kodachrome By setting camera speed at 8 frames, he will gain increased exposure equivalent to approximately f/1.9. Of course, any movement within the scene will be speeded up and

(Continued on Page 516)



SCENES of waterfalls and rolling surf become more impressive on the screen in the languid, slower motion provided by 24 or 32 fps

FAST ACTION, such as this, can be shot straight-on at 24 or 32 fps At 16 fps., a slight blurring will occure.

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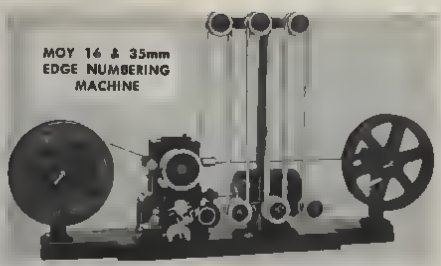

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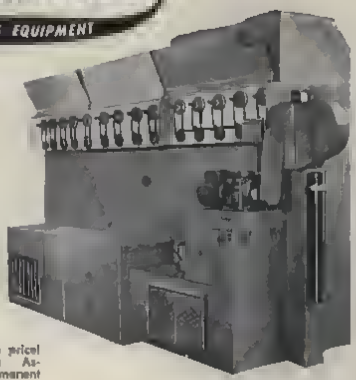

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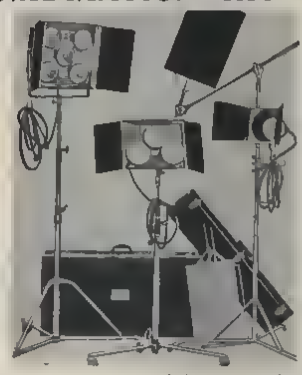

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TWO PHOTOS on this page show a typical professional treatment of a dramatic scene in which the long shot (above left) is followed by a detail-revealing closeup that tells what the safecracker is doing

MOVING IN closer, the camera reveals that the man is rigging wires in a gang's safecracking preparation. The closeup gets the point across at once and with less footage than a long shot would require

The Place Of The Closeup In Your Movies

The closeup is one of the most important elements in story-telling films. It belongs in amateur films, too. Knowing how and where to use it is a trick every filmer should know.

By JOHN FORBES

THE CLOSEUP, perhaps, is responsible as much as anything else for the triumph of the motion picture over the theatrical stage as a source of entertainment. This is because movies, through the medium of the closeup, bring the story closer to the spectator.

Here, then, is a clue for the amateur movie maker who would pursue the professional manner of styling his movies. The closeup is the easiest and the best method of injecting maximum interest in the pictorial account of almost any subject that can come before the lens of an 8mm or 16mm camera.

The thing that should be remembered is that it is just as easy to shoot a closeup as a long shot; but a closeup requires less film because it takes the spectator less time to observe details in the more vivid, closer shot. An example of this is the situation pictured above in the first two photos. The first shows a safe-cracking operation filmed from a medium distance. Just exactly what the man in the background is doing cannot be clearly seen at that distance; moreover, if the shot was held until the action was completed, it would be overly tedious. So what did the professional do here? Moved in for a closeup of the vital action—the safecracker wiring the safe for the blast, as shown in next photo.

Now the reader may never be called upon to shoot action of this kind, perhaps, but this example of professional treatment will serve to guide him in executing the photography and subsequent editing of some similar situation, i.e., action introduced from a medium or long shot.

If for no other reason than to conserve film by the increased number of scenes he thus can get on a roll, the cine amateur should think more and more in terms of closeups when shooting.

We are often asked to define a closeup—its proportion with relation to the scenes and precede and follow it.

This depends a great deal upon the subject. Where the subject is a person, then the type of closeup will depend upon the theme of the story, the action at hand, and the emphasis or the effect one wishes to create at this point in the production. Therefore we have a fairly wide range of closeup formats to choose from. A "tight" closeup consists of fram-

ARTFUL composition of a closeup can point up with considerable emphasis important story-telling dialogue between two people

ing the subject's head tightly against the frame of the picture—sometimes cutting into the forehead. Where subject is to move about slightly, the camera will shoot the closeup a little farther back, so that as subject moves he does not go outside the frame line.

Closeups, of course, are not always confined to persons or players in a film story. There are hands in interesting or story-telling action, and feet; and then there are any number of small objects which require closeup filming in order that they may be seen in greater detail on the screen. Where the subject is a flower or some other inanimate thing, a closeup will consist of showing the subject full screen size.

Smart cine filmers given to traveling and recording the interesting detail of places they visit will invariably include closeups of intricate designs in architecture, such as is to be found in Taxco, Mexico, or in India. A Taxco cathedral, for instance, is an enthralling sight when viewed from any distance, but its real beauty is revealed in closeups of architectural detail.

When filming photoplays or continuity films in which people appear, the real importance of closeups presents itself. Here the closeup singles out the leading

(Continued on Page 510)

A Film Rule For Film Makers

A novel tool for the serious cinefilmer that will aid him in cutting and editing films.

DO YOU KNOW how many frames you should allow for a fade? For a lap-dissolve? Or how long an 8mm or 16mm title should be? This information is set down in a unique film ruler designed by Ray Mercer, A.S.C., head of one of Hollywood's oldest independent title making and special effects laboratories. With the Mercer film rule as a guide, the amateur can quickly arrive at the answer to a number of problems in film making. Made of metal, the rule—pictured at right—provides a wealth of vital data for both amateur and professional, for the making of 35mm, 16mm, and 8mm films.

Ray Mercer, in discussing use of the rule, reveals pertinent information relative to film making and editing for amateurs in a leaflet his company offers entitled "Professional Hints on Cutting and Editing Your Own 16mm Film."

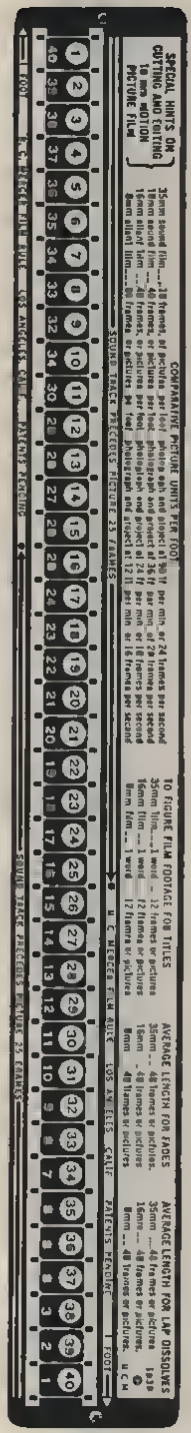
"In telling a story cinematically, always remember that if your subject or scenes are entertaining, then and only then does your picture justify existence," says Mercer.

"Every scene must have significance and must sustain interest. Therefore judicious care and thought must be given to the footage of each scene. If a scene is too long, it drags and thus dampens interest. If it is too short, its point may be lost. Unfortunately, no rule or formula is applicable to this important phase of film editing. But with the above thoughts in mind, plus some imagination and a little experience resulting from the "trial and error" method, you should achieve a fair amount of success.

"Film editing is basically an art. True that definite mechanics are involved which should be performed almost instinctively. But, one artist is only better than the other artist (both possessing comparable technique) because the former possesses more imagination. Therefore, strive for the mechanics first.

"Since the average amateur shoots his own film, he is in a position to control the editing to a great extent

(Continued on Page 510)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16mm film—1 weid ... 12 frames or pictures
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A FILM RULE FOR FILM MAKERS

(Continued from Page 509)

hy shooting with forethought For instance, he can first establish locale with a long shot. In order to permit the audience to become a little more intimate with the subject, cut next to a medium shot which is considerably closer than the first long shot. The long shot and medium shot are left on the screen for sufficient time to familiarize the audience with generalities. Now punctuate definite points of interest by cutting to a closeup. The closeup scene may he compared to an underlined word—it concentrates attention on just one point, eliminating any distracting influence. Therefore, this closeup scene need not be on the screen quite as long as the long shot or medium shot In other words, less film lootage need be devoted to the closeup. In shooting closeups, however, bear in mind that the action of players must be slower than in the long shot or medium shot, to prevent blurring of the image.

"The artistry of the film editor is determined by his ability to properly intercut the various long shots, coordinated pattern so that the story is told without straining the audience's attention.

"The next important step is to establish proper cinematic timing between the various episodes or sequences in your film In this important procedure the Mercer film rule is a necessary adjunct to insure ease of operation and accuracy of results By this time you have acquainted yourself with the significance of the fadein and fadeout The former is comparable to the rising of the curtain in the legitimate theatre, and the fadeout represents the lowering of the curtain on one of the acts. Thus with the fadeout you have a definite cessation of time, and you will use this cinematic device to signify the ending of an episode and the beginning of another sequence. The Mercer film rule will quickly determine for you the length of the fade and the method for marking it to enable the laboratory to carry out your requirements, where these effects are to he laboratory-made

"On the other hand, should you desire a quick transition from one locale to another, use the device known as the dissolve. Here the Mercer film rule will facilitate the accuracy of marking one's film for the laboratory where such an effect is to be added. Thus, through the judicious use of fade or dissolves, real professional embellishment is given amateur films

"Most 8mm and 16mm home movies require titles. Here again the Mercer film rule can be of immense value in aiding the amateur to determine the number of frames that he should allow any given title composition The ideal allowance for a subtitle for an 8mm film, for example, is 12 frames per word. If the title consists, say, of 25 words, reference to the Mercer film rule will show that such a title should be 600 frames or 7½ feet in length and will be on the screen a little over a half a minute (projected at 16 fps)."

It goes without saying that any tool or gadget that will ease the task of shooting, editing or titling movies deserves a place in the movie amateur's kit of tools.

THE CLOSEUP IN YOUR MOVIES

(Continued from Page 509)

characters and shows them more intimately on the screen. Any heavy emoting of characters in a play should be photographed in closeup, this adds the necessary emphasis to the action.

In the professional Hollywood films, closeups are utilized to emphasize bits of action important to the story because such action is usually only vaguely discernible in medium or long shots—as in the scene of the safecrackers pictured here. For this reason, a shot of a person writing should be followed immediately by a closeup of what he is writing—a shot, which in Hollywood parlance is more properly termed an "insert." Similarly, a scene showing a man reaching into a desk drawer should be followed up by a closeup of what he found there —unless the story demands a different treatment A person shown in a medium shot operating a machine can be made more interesting if a closeup of what he is doing with the machine immediately follows.

Closeups serve as reaction shots, too. These show the audience the human reaction of one or more persons in a scene to some action or sound, startling or otherwise, taking place as the story unfolds A simple example of a reaction shot would be cutting quickly to a closeup of a man's face as he observes a pretty bathing girl pass by at the beach. The essence of the reaction shot is brevity; to let it linger on the screen too long, kills or at least greatly reduces its impact.

The best of the documentary film makers utilize closeups a great deal to reveal new and interesting things close up on the screen—to reveal important details at close range. An unusually well-made amateur film on the subject of pot-

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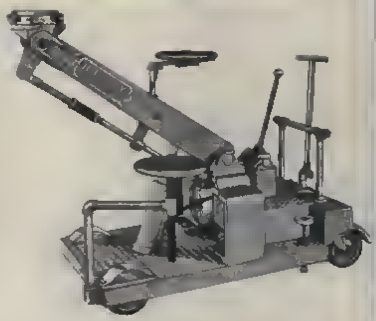

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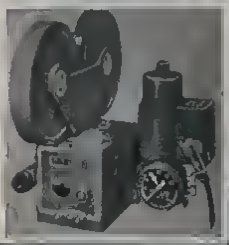

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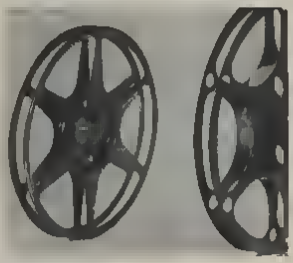

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tery making which this writer saw recently, was remarkable for its abundance of carefully detailed closeup shots—many of them actually ultra-closeups—which showed every particular and device of the potter's technique.

In professional film making, the script writers understand the function of various type shots and know what effect they can produce on the screen. For this reason, each scene is carefully detailed in the script as to the kind of shot, medium, long, closeup, two-shot, etc. The shots are thus planned far in advance of the actual shooting.

When amateur movie makers undertake a continuity film, it should likewise be carefully visualized in advance, then laid out on paper in the form of a shooting script, so that the cameraman will know immediately what type shot to set up for when it comes time to film the various scenes. It is possible, of course—following a great deal of experience of shooting and "editing your film as you shoot"—to shoot continuity films "off the cuff." But much better results will follow where the script is prepared in advance.

Thus, in preparing a shooting script, the following rules can be helpful:

In most cases, the action to be pictured in a closeup should first be introduced in one or more medium or long shots immediately preceding it. These establish the locale, the mood, or the reason for the existence of the subject or action to be shown in closeup. The closeup emphasizes and brings the action to a climax.

Sometimes this technique is reversed for special reasons; a sequence will *begin* with a closeup, with the camera moving progressively farther away, either in a dolly shot, or in a succession of cuts until the setting of the action is revealed fully in a long shot. This technique is often employed where it is desired to inject an air of mystery or suspense into the story at the very beginning.

A typical example would be this sequence, seen recently in an amateur film: The picture opens with the camera close up on a partially opened door. A hand clasping a revolver is suddenly thrust through the opening and pulls the trigger. The door slowly closes and there is an immediate cut to a closeup of the assassin's feet walking quickly along a corridor. The setting of the action is never revealed until the next scene—a medium shot of an office in which the victim of the gunman is shown slumped across a desk.

Closeups of such action as a hand ringing a doorbell, the posting of a letter, the writing of a note, etc., are all too familiar. Yet few amateur film makers photograph such closeups with the imagination and artistry necessary to make them fully effective, just a little different. There's a knack in choosing the right camera angle and the most intriguing lighting to achieve a closeup that carries the maximum impact.

So, no matter what the subject of your filming, closeups will make your picture more interesting. Movies of the family, of your vacation, the company's annual picnic, etc., all will be more professional if you include closeups.

And if you don't mind this oft-repeated admonition: study the professional film maker's technique at your local theatre. Note how skillfully closeups are used in theatrical film dramas to build climaxes, to reveal startling facts, to build interest in a love scene; how the same medium is used in a documentary short subject to acquaint the audience with some important detail; how even the animated cartoon producer uses it skillfully to point up some humorous action. Your theatre screen is a powerful teacher. Employ it frequently to aid you in your closeup filming technique.

CAMERAMEN ARE A BREED APART

(Continued from Page 503)

the great battle wagons and liners which have anchored in the Basin.

A cameraman, unimpressed with his first view of the great port and understanding nothing of Haligonian pride, sought to open a conversation with an ancient sea-dog.

"This is certainly the garbage can of the world, isn't it?"

The ancient mariner caught the cameraman in his sights, elevated for range, and fired a broadside aimed at reducing the offending lensman to ignominy.

"It sure is, son, judging by the trash that keeps dropping in!"

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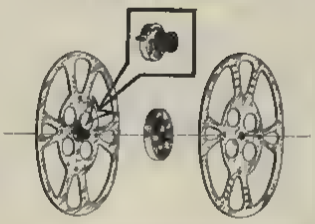

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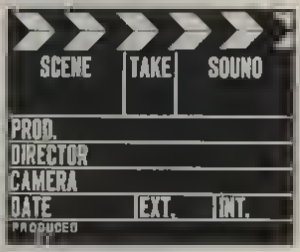

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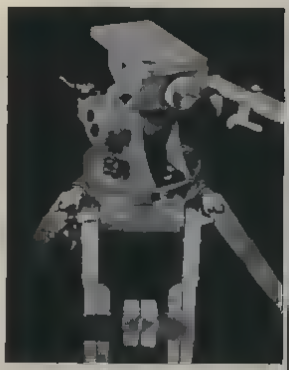

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deck after a hard day's filming. The director became interested in the photographic possibilities of the gulls following the ship. But he hadn't the courage to request more of his weary cameraman. So he dismissed the idea.

Some months later, in the screening room, the director was amazed to see his gull shots. The tired photographer had, without request, spent a tedious hour trying to recapture scenes of gulls in flight. The problem had intrigued him.

Sometimes, in the mortal conflict between director and cameraman, the lensman is the plaintiff. A director once condoned his choice of a jet-black horse for a whitewashed stable scene with the inconsiderate remark, "Don't let the contrast worry you. Black is black and white is white. Just expose properly and the scene will be okay."

To the conscientious color cameraman who spends his precarious existence trying to balance all color elements within the narrow, two-stop limitations of color film, such misunderstandings of his problems smacks of an outright conspiracy to sabotage his work. But it is probably in the realm of ingenuity that the cameraman exhibits his true genius.

A fishing film had as its theme the thought that a small boy and his pet bear might be better fishermen than their professional elders. The key scene was to show the little bear waddling down a forest trail behind his young companion. Over the boy's shoulder hung his homemade line with a fish dangling at the end.

Little trouble was anticipated in putting the scene on film. But bruin had a mind of his own. Maybe he was allergic to having his picture taken. Whatever the reason, at every camera start, the frolicsome bear would dodge off the path into the bushes. Even the sight and smell of the fish proved no incentive to keep him on the trail.

After several unsuccessful attempts, it was decided that several men should lie down on either side of the path out of camera range. The theory was that, by hoarse shouting from both sides, the men could scare the uncooperative mammal into a reasonably center course. But Bruin Junior had never been to college, and didn't understand theories. Was it his fault if he thought that the men wanted to play?

The next inspiration was to tie an invisible thread from the boy's leg to the wanderer. But such coupling can be a double-edged weapon. The young denizen of the forest reversed his field, and the boy, fish and bear were soon wound in a tangle of fishing line.

Enter our genius! With a sudden flash of understanding, he remembered that, sometimes, that which cannot be led or pushed can be coaxed. A courier was hastily despatched to camp. On his return, a thick, creamy substance was smeared around the cuffs of the boy's trousers.

Take twelve coming up! Master Bruin followed the boy down the path as meekly as a sixteen-year-old bride. It is your privilege to estimate, in the long anthology of bruin history, the number of wilful bears who have been seduced by a little bit of honey!

Sometimes the production mountain labors and brings forth an extra small mouse. On a boat trip up the Yukon, it was necessary to secure long shots of the ancient paddlewheeler as it chip-clopped its shallow passage upstream. But wilderness being noted for its lack of civilization, the territory offered no locations or other means of transportation from which such scenes might be filmed.

The captain offered a solution. The boat had to travel around a long neck of land to reach a certain port. The trip required several hours. But a camera crew could reach the port by an overland hike in two hours. They could then film the wood-burner from a high hill as it approached the settlement. The idea sounded excellent.

At zero hour—ten in the morning—the ambitious crew set out for the port of their dreams. The trail proved rough, multi-directional, and ankle-deep in dust. The hot Yukon sun turned the camera equipment into lead. The two hours stretched into five.

But, finally, a grim, dog-tired crew dragged into port—a crew painfully educated in the rigors of wilderness travel. The weary innocents were greeted by the entire population—one white family and twelve Indians. All that remained was to climb the hill for proper elevation.

Yes, the hill! But the absent-minded captain had forgotten to mention that, between the settlement and the hill, there lay a little matter of a muskeg swamp of unknown trustworthiness. So, with outraged bone and muscle, the pilgrims spent another two hours of prospective circling and climbing, with frequent losses of direction, until the hill finally was won.

Won—but of little use until a large patch of virgin timber had been cleared to permit an unrestricted view of the settlement and river below. As the heroes draped their limp bodies over the handiest supports to await the long-overdue boat, there was little effort to resist the swarms of angry, black gnats and mosquitoes that so violently objected to this intrusion into their sanctuary.

With the scene on film, a major decision had to be made. Which way back—the two-hour circuit or the steep, 200-

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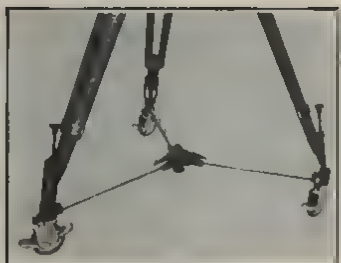

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ft. hill and the swamp? Bruised bodies and over-taxed endurance supplied the answer.

And so, the valiants slid, tripped and fell down the steep slope into the swamp. The forbidding journey across the bog was accomplished with apprehensive eyes and flailing arms as the reckless crew with uncertainty jumped from hummock to hummock. Sometimes, the hummock was solid ground. Often it proved false and lowered the unfortunate into two or three feet of quagmire—the refuse of the years.

At zero plus eight, the men, now looking like scarecrows, arrived at boatside with torn clothing, lacerated faces and bodies caked with trail dust and swamp water. They had worked eight strenuous hours without food.

And what was the product of this labor—what great accomplishment of this mortification of flesh and spirit?

Two six foot scenes of Yukon wilderness!

Three months later, the scenes found their way into that cemetery of all rejects—the cutting room scrap basket. And who can say that, as the film fluttered to its last resting place, certain cameramen didn't feel a little of their blood sacrificed?

By the fairest of judgments—the most impartial of trials—such motion picture cameramen stand convicted of using pressure and opportunism for photographic considerations. On the credit side, stands the heart which recognizes no obstacles in the work of placing before men's eyes the visions which guide their knowledge and understanding.

In the final analysis, the cinematographer has no defense for his art. He stands naked before a critical audience. But he need have no fear. For the phantasies of light and shadow which he created have clothed his person in an aura of worshipful light—a light reflected from the eyes of movie fans of all ages around the world.

IMPORTANCE OF VARIABLE CAMERA SPEEDS

(Continued from Page 506)

for this reason shots of this kind should not include vehicles or people.

Two very important things must be remembered when shooting in normal light at half speed: (1) be sure to decrease exposure by stopping down lens (because of the lengthened exposure time allowed by slower movement of the shutter) and, (2) camera must be held as steadily as possible—preferably on a substantial tripod. The first may be taken care of by closing down the lens one full stop when changing camera speed indicator. The second is equally important, for when speed of subject is increased, any jiggling or sideway in the camera is likewise increased and shows up painfully on the screen. Panning, for example, should never be done at 8 frames per second.

Some makes of cine cameras provide for speeds of 8, 16, 24, 32, 48, and 64 frames per second. Others include only the 8, 16, and 32, providing for half and double speed in addition to the normal speed of 16 f. p. s. There is probably no reason for this other than the fact that mechanical design precluded the possibility of providing all five speeds, not that the average amateur ever has use for all of them.

Twenty-four frames per second is the established speed for sound film. All sound motion pictures or silent movies filmed with the object of dubbing in sound later are filmed at this speed and, of course, are projected at the same speed. Many amateurs, who have no thought of using sound, frequently shoot at 24 frames because it smooths action when the film is screened at 16 f. p. s.

Twenty-four frames represents a fifty per cent increase in camera speed and means that each frame is exposed for only 1/45th of a second, in the case of cameras giving a normal 1/30th second exposure. This also means the lens must be opened up ½ stop to compensate for the decreased shutter exposure.

Here a diaphram compensator or lens stop conversion chart is a handy thing to have around. One is included in the wealth of charts and tables that appear in the American Cinematographer Handbook, edited and published by Jackson Rose, A S C. The chart, which is reproduced here, has been prepared especially for users of 8mm and 16mm cameras.

Take for example a scene which would normally be shot at f/6 (at 16 fps). Should you wish to shoot the same scene at 48 fps, a glance at the lens stop conversion chart would show that your lens should be opened up to f/3 2. You get an immediate answer without the need to figure it out in your head or with pencil and paper.

Following are some examples of how and when to use camera speeds faster or slower than normal.

Shooting from moving vehicles: If the ride is rough and you are shooting from the conveyance, shoot at 24 fps instead of 16 to smooth out any extraneous camera movement caused by the vehicle.

To slow action. Scenes of waterfalls, rolling surf, high waves, etc., will appear more breathtaking on the screen if the

(Continued on Page 518)

BOOKS you'll want to read

Theory of Photography Process—*By Dr. C. E Kenneth Mees. Published by Eastman Kodak Co., Rochester, N. Y.; 1124 pages. $21.50.*

The availability of a new, revised, second edition of this famous book is announced by Eastman Kodak Company

Book deals with the composition and properties of photographic light sensitive materials, factors controlling their sensitivity to light, changes induced by light action, the development process, properties of the final image, and the measurement of its tonal values. Its list of contents include Photographic material, Action of Radiation, Optical Sensitizing, Development and After-Process, and Physics of Photographic Process.

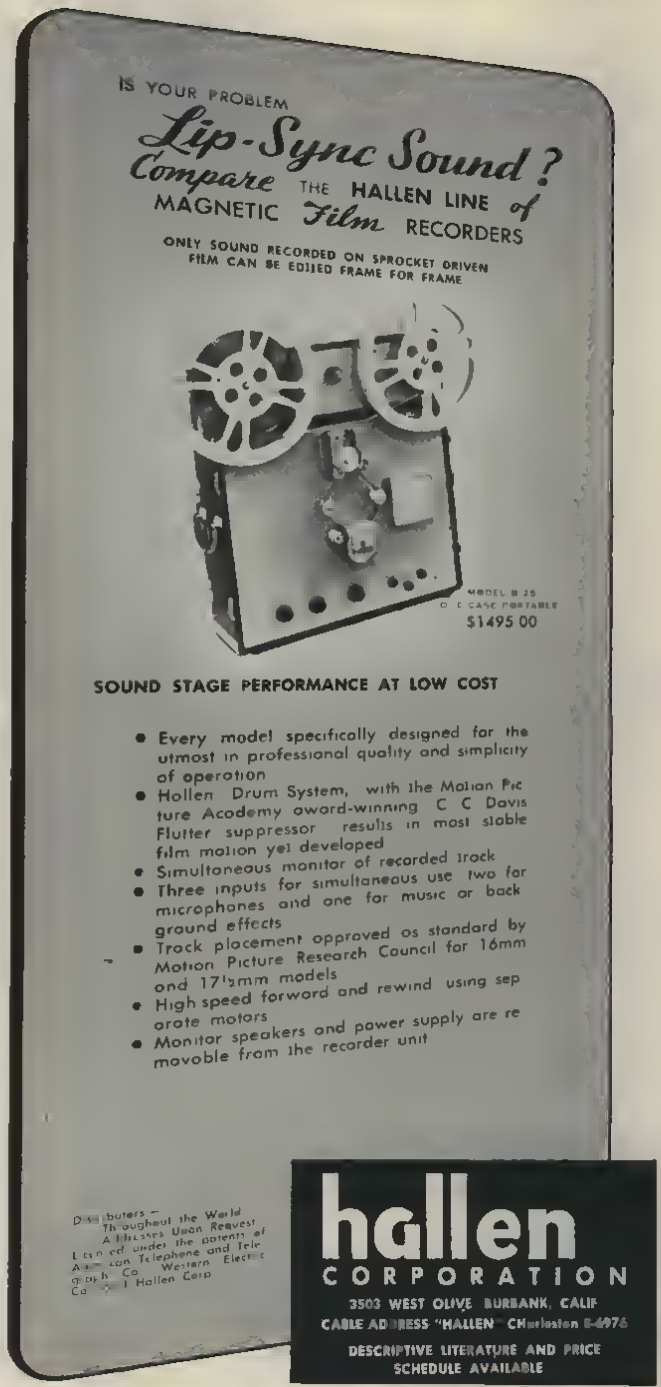
Home Movies Scripts — *Edited by Henry Provisor. Publisher. VerHalen Publications, 6327 Santa Monica Blvd., Hollywood, Calif. 96 pages; $1 50.*

Here is a collection of short movie scripts prepared especially for makers of 8mm and 16mm amateur movies.

The advanced amateur will also find much of interest in this collection, too fn addition to the four longer professional-type scripts, many of the short skits may, with the exercise of a little imagination, be expanded into longer, more complex narratives As such, the book is a veritable source book of story ideas for the cine filmer.

Optical Image Evaluation—*Proceedings of the symposium held October 18-20, 1951, National Bureau of Standards Circular 526, 212 figures, 289 pages, $2.25. Order from Government Printing Office, Washington 25, D.C.*

The National Bureau of Standards has been active in the field of optical image evaluation for many years. In the field of applied optics it has been usual to evaluate optical design by taking measurements of the system's geometric abberations However, because of newer, more modern procedures which have been developed, it seems desirable to re-examine the older methods of image evaluation as well as the newer procedures in order to place image evaluation upon a more sound engineering basis For this purpose the symposium mentioned above was held. The full papers of this symposium are presented in this book, including the discussions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VARIABLE CAMERA SPEEDS

(Continued from Page 516)

action is reduced slightly by shooting at 32 fps. Also scenes of boxing, rodeo and other fast-action athletic events will be easier to watch on the screen if filmed at 32 fps.

Where fast motion amplifies movement of an unsteady camera, slow motion minimizes it. For this reason 32 fps speed is often used in making telephoto shots.

Ultra-Slow Motion Protography is accomplished by shooting at 48 or 64 frames per second. At such speeds, film passes the lens at a terrific rate—a hundred-foot roll being consumed by the camera in surprisingly fast time. The screening time, however, remains the same as with film exposed at normal speed.

One use to which high and low camera speeds are put in the Hollywood studios is the filming of miniatures. In feature films, all action on miniature sets is shot at 48 or 64 frames per second. This effects a more natural aspect to the movement of objects within the scene, such as miniature ships, trains, the movement of water, etc.

So take a tip from the professional and use the range of speeds your camera provides whenever they can enhance the result in a scene or sequence.

EQUIPMENT SOURCE

(Continued from Page 503)

either—*but it could be made right out of rental stock.* It designed and built special telescope finders and cradle-mounted telephoto lenses, which permitted the Glenn L. Martin Company to complete its assignment with complete success, and without the added expense of purchasing the special equipment.

This reputation for ingenious solution of difficult engineering problems, for doing things that were never done before, has won for Camera Equipment Company an enviable reputation in the professional film world. Because of its large storehouse of experience, Camera Equipment maintains a consulting service on production and engineering, helping producers hurdle what appear to be insurmountable obstacles.

The advent of CinemaScope and other sensational projection methods found Camera Equipment abreast of all the new techniques, offering production companies important advice in adapting themselves to these new arts. Nor does the company limit itself to developments in the United States. Periodically Frank C. Zucker, head of the organization, makes quick continental tours to check up on foreign developments and to keep in close touch with the producers shooting on European soil.

Another instance of the company's resourcefulness occurred when CBS was conducting its color tests. The TV cameraman requested a tripod head, and the company sent its famous "Balanced" model C. TV head. But the cameraman was having trouble with the frontal adjustment. Since the changeover from long to short lens required split-second timing, the cameraman found the front wrench adjustment inconvenient.

C-E technicians took back the "Balanced" head, eliminated the wrench entirely, and attached a knob at the rear, permitting the cameraman to "shift gears" easily and almost effortlessly.

Recently Senator Kefauver and his famous investigating committee were looking into the matter of comic books. Hearings were held in the Federal Courthouse, New York. One day an agitated telephone call came to Camera Equipment Company. The committee was having trouble in projecting the evidence on a large screen. Would C-E send a qualified man to correct the difficulty? The representative quickly found that the powerful lights used by the TV and newsreel camera crews washed out the picture on the screen. A projector having a more powerful lamp was brought in, thereby winning the personal thanks of Senator Kefauver.

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child and the embodiment of Frank Zucker, one of the outstanding motion picture pioneers in America. A topnotch cameraman who started 'way back in the days of D. W. Griffith, Frank was a contemporary of Billy Bitzer and other lens immortals. When Flo Ziegfield took his European tour after World War I, Frank went along to record it on film. When talking pictures were in their nebulous stage, Frank experimented with sound for RCA, Warner Brothers and Dr. Lee DeForest. Because Frank was a great cameraman and knew the problems of his profession, he exerted all the skill and creative thinking at his command in manufacturing equipment that enables the man behind the shutter to achieve outstanding results.

At the executive level, Frank Zucker is aided by Gene Levy, who came up from the working cameraman ranks to become associated with the company at its inception, some 18 years ago, and Burton Zucker, a son, who has inherited his father's celluloid blood.

It was typical of Zucker thinking that, when the company entered the micro-relay equipment field, existing standards served only as a jumping-off place for C-E designers and technicians. The result is that Camera Equipment micro-relay line has been certified by equipment manufacturers to exceed all standards for efficiency and strength of cur-

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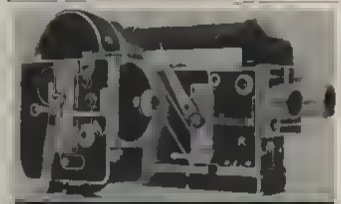

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Like most people who are engaged in this absorbing business, the practitioners are too busy to see the romance. Once an employe kept a log of a Mitchell Camera, beginning with the day it received its shakedown test for accuracy and efficiency prior to being placed in Camera Equipment's extensive rental department.

The Mitchell went to a TV producer to make a commercial. Another TV producer rented it to make a half-hour short. Then a call came from the Ford Motor Company — they needed it for special photography on their proving grounds. Rome, Munich and Canada were next on the itinerary. Then came a series of sport events, football and boxing—then South America.

After each trip the camera went into the C-E maintenance shop for thorough testing and overhauling by experienced technicians. This devotion to quality and accuracy is one of the many reasons why Camera Equipment Company is a by-word in the industry, the standby for so many cameramen, directors, producers and executives whose job it is to make the film chronicles of the nation

REMOTE CONTROL FOR 16mm STOP MOTION PHOTOGRAPHY

(Continued from Page 500)

cameras will perhaps suggest different shapes for this component of the device. There is nothing critical about it; it need only be strong enough to insure that action of the solenoid lever will be firm and not likely to jar loose during use.

The solenoid illustrated comes equipped with two mooring bolts, located directly opposite each other. The lever operates between them. Three holes must be drilled in the plastic mount—two for the mounting bolts and one for the shaft of the solenoid on which is mounted the lever. The latter is readily removed from the shaft by means of an Allen wrench. Care must be taken, after the solenoid is bolted in place and the lever re-mounted, that the lever does not bind on the plastic mount, but works as freely as it did before mounting.

The two wires which supply the battery current lead from the solenoid terminals to the battery. At a convenient point, the cable having the push button at one end is cut in—joined in "series" with one of the two battery wires. Thus, the push-button operated at a remote distance serves to activate the solenoid whenever a single-frame exposure is to be made.

Obviously, the hookup for the various makes of cameras will differ somewhat, but none pose difficult problems. Observing the bookup of the Cine Kodak-Special pictured here will suggest how it may be applied to other cameras. Here an ordinary paper clip, straightened out, provided a suitable linkage between the solenoid and the camera starting button. In arriving at this step of the installation, one should make sure that the solenoid is so mounted that its action corresponds with the direction in which the starting button operates. In other words, if the button must be pulled *down* to operate the camera, then the solenoid lever must also operate in this direction—elementary, but nevertheless a matter than can easily be overlooked.

The action or "stroke" of the solenoid is usually much greater than that of the camera starting button. This is not likely to result in camera damage, however, for the solenoid does not have to complete its maximum stroke in order to be effective. It will pull the wire link sufficiently to trip the shutter, and when the remote control button is released the solenoid and shutter release will return to normal position.

The three photos at bottom of page 500 show use of the solenoid-equipped Cine Kodak-Special in photographing an animation sequence depicting the route of travel on a topography map. In the first photo, the author is shown adjusting the camera for position, focus and lens stop before starting to shoot the sequence. Here the camera is mounted on a Graflarger stand, available in camera stores. The stand is inexpensive and is ideally suited for the purpose described.

The center photo shows the production staff at work. The camera is overhead, focused down on the map on the floor. The girl at the left holds the remote control button in her hand, the cord of which is seen leading to the camera. In the left photo the same girl is shown moving the "line," which is the animation subject, a fraction of an inch following which she pressed the control button momentarily to effect the camera exposure.

A remote control such as this virtually puts the camera release button in your hand, so that you have it with you at all times when working on an animation project of this type. It makes the operation of tripping the shutter and advancing the action of the animation much easier, and there is less wasted motion. After the necessary change has been made in the subject being photographed, the operator need only lean back out of range of the camera, then push the button, and repeat the animation step again.

FILMORAMA

(Continued from Page 504)

16mm films exclusively. Not only has it made it possible for these exhibitors to screen the latest CinemaScope releases in 16mm, but many areas of film production hitherto unconsidered have adopted the 16mm wide-screen camera lens. Walt Disney, for one, is providing many of his field cameramen with the Bell & Howell anamorphic lens, enabling them to shoot 16mm color footage that may be blown up to standard 35mm CinemaScope.

In the independent field, an interesting 15-minute scenic film of Chattanooga, Tennessee, titled "Backgrounds To Beauty," has been filmed by Continental Productions Corporation of that city. James E. Webster, head of the producing company, says that when he started the production, there were only four FilmoRama lenses in existence Disney Studios got the first three, and Webster's organization was lucky to get the fourth.

A 16mm motion picture in color, "Niagara Holidays," is now being produced by Roquemore Films of Buffalo, N. Y., using the new anamorphic lens. According to Everett Roquemore, head of the company, many producers of professional business films are adjusting

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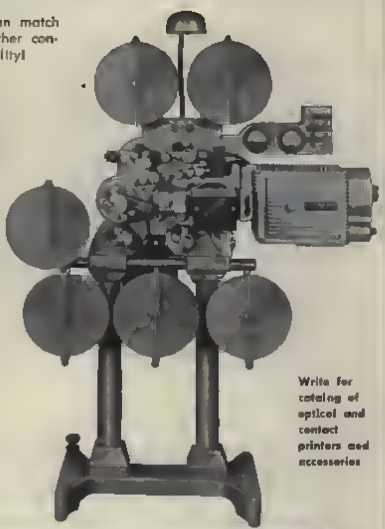

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JOSEPH RUTTENBERG, "The Prodigal," Eastman color, CinemaScope.

ROBERT PLANCK, "Moonfleet," color, CinemaScope.

GEORGE FOLSEY, "Hit The Deck," CinemaScope, Eastman color.

PAUL C. VOGEL, "Interrupted Melody," color, CinemaScope.

PARAMOUNT

ROBERT BURKS, "To Catch A Thief," Technicolor, VistaVision.

ROBERT BURKS, "The Trouble With Harry," Technicolor, VistaVision.

LIONEL LINDON, "Lucy Gallant," Technicolor, VistaVision.

20TH CENTURY-FOX

LUCIEN BALLARD, "White Feather," Technicolor, CinemaScope.

JOE MACDONALD, "The Racers," color, CinemaScope.

LEO TOVER, "Untamed," Technicolor, CinemaScope.

LEON SHAMROY, "There's No Business Like Show Business," color, CinemaScope.

CHARLES G. CLARKE, "Prince of Players," color, CinemaScope.

MILTON KRASNER, "The Seven Year Itch," color, CinemaScope.

UNIVERSAL-INTERNATIONAL

WILLIAM DANIELS, "Foxfire," Technicolor, wide-screen.

CARL GUTHRIE, "Lady Godiva of Coventry," Technicolor.

LLOYD AHERN, "The Looters."

MAURY GERTSMAN, "To Hell and Back," Technicolor, CinemaScope.

RUSSELL METTY, "Justice Comes to Tomahawk."

WARNER BROS.

ELLIS CARTER, "The River Changes," Warner Color, CinemaScope.

LEE GARMES and RUSSELL HARLAN, "Land of the Pharaohs," Warner-Color, CinemaScope.

WILLIAM SKALL, "The Silver Chalice," WarnerColor, CinemaScope.

HARRY STRADLING, "Helen Of Troy," WarnerColor, CinemaScope.

HAL ROSSON, "Strange Lady In Town," Warner Color, CinemaScope.

TED McCORD, "Young At Heart," Arwin Prods., WarnerColor.

WINTON HOCH, "Mister Roberts," CinemaScope, WarnerColor.

HAROLD ROSSON, "Strange Lady In Town," WarnerColor, CinemaScope.

INDEPENDENT

ROBERT SURTEES, "Oklahoma," Eastman color, Todd AO, CinemaScope, R & H Pictures.

STANLEY CORTEZ, "Night Of The Hunter," Gregory Productions.

ERNEST LASZLO, "The Kentuckian," Hecht-Lancaster Prods., Technicolor, CinemaScope.

FRANK PLANER, "Not As a Stranger," Stanley Kramer Prods., Widescreen.

TELEVISION

(The following directors of photography were active last month in photographing films for television in Hollywood, or were on contract to direct the photography of television films for the producers named.)

LUCIEN ANDRIOT, "Where Were You?," Ken Murray Productions; "It's a Great Life," Raydic Corp'n; "The Life of Riley," Hal Roach Studios.

JOSEPH BIROC, "Treasury Men in Action," American National Studios, Inc., and "Dear Phoebe," Dear Phoebe Productions.

WILLIAM BRADFORD, "Gene Autry," Flying A Productions.

NORBERT BRODINE, "The Loretta Young Show," Lewislor Ent.

EDWARD COLEMAN, "Dragnet," Sherry TV, Inc.

FLOYD CROSBY, "Authors Playhouse," Authors Playhouse Prods.

ROBERT DE GRASSE, "Make Room For Daddy," Marterto Prods., Inc., and "The Ray Bolger Show," B & R Ent.

GEORGE DISKANT, "Four Star Theatre," Four Star Productions, Inc.

E. B DUPAR, "Tim McCoy Show," Mercury-Int'l Pictures.

ELLSWORTH FREDERICKS, "The Dennis Day Show," Denmac Productions.

HENRY FREULICH, "Captain Midnight," Screen Gems.

KARL FREUND, "Willy" and "December Bride," Desilu Productions, Inc.

FREDERICK GATELY, "Mayor of the Town," Rawlins-Grant, Inc., and "Big Town," Gross-Krasne, Inc.

AL GILKS, "The Halls of Ivy," Television Programs of America, Inc.

BEN KLINE, "Fireside Theatre," "An Argument With Death," Frank Wisbar Prods.

JACK MACKENZIE, "Public Defender," Hal Roach, Jr., Productions.

ERNEST W MILLER, "Rocky Jones, Space Ranger," and "Stu Erwin Show," Roland Reed Productions.

VIRGIL MILLER, "You Bet Your Life," Filmcraft Prods.

HAL MOHR, "That's My Boy," McCadden Corp'n.

NICK MUSURACA, "The Lone Wolf," Gross-Krasne, Inc., and "Lancep," Desilu Prods., Inc.

KENNETH PEACH, "Here Comes Donald," O'Connor Prods.

ROBERT PITTACK, "The Lone Ranger," CM TV Productions, Inc.

JOHN L. RUSSELL, JR., "Joe Palooka," Guild Films.

WILLIAM SICKNER, "The Whistler," Lindsay Parsons Productions.

MACK STENGLER, "Liberace," "Life With Elizabeth," "Florian Zabach Show," and "Frankie Laine Show," Guild Films.

HAROLD STINE, "Cavalcade of America," "This is Your Music," Jack Denove Prods., and "Corla Pandit," Snader Prods.

WALTER STRENGE, "Waterfront," Roland Reed Productions, and "My Little Margie," Roach, Jr Reed Productions.

PHILIP TANNURA, "Burns And Allen Show" and "The Jack Benny Show," McCadden Corp'n.

STUART THOMPSON, "Lassie," Robert Maxwell Associates.

JAMES VAN TREES, "I Married Joan," Joan Davis Enterprises and "Hey, Mulligan," Mickey Rooney Enterprises.

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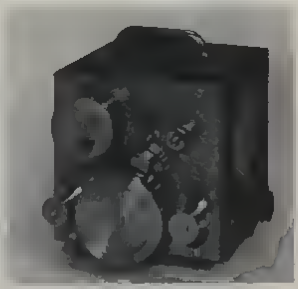

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FILMORAMA

(Continued from Page 521)

their sights to include the new Cinema-Scope type of 16mm pictures in the belief that added realism and greater interest will make these films more effective in the fields of selling, advertising, and mass education. "I'm sure that we can look forward to many more 16mm non-theatrical films, photographed and projected with anamorphic lenses which will be shown on wide screens in meeting rooms, schools, churches, clubs, etc.," Roquemore said

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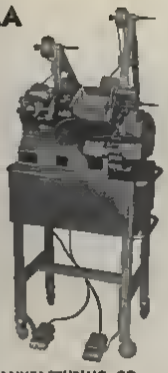

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"A" AND "B" ROLLS

(Continued from Page 499)

practice and ingenuity, the 16mm film editor can "A" and "B" many clever effects. Sometimes "C," "D" and "E" rolls are also assembled to achieve almost unlimited multiple exposures or "montage" sequences. Opening titles, for instance, can each be dissolved "A" to "B" while action background scenes are simultaneously dissolving on "C and D" rolls.

Recently, a unique editing and printing procedure has been developed that, for the first time, permits camera negative 16mm scenes to be printed with dissolves, fades and superimposed titles. With this ingenious method, black and white release prints from camera negatives can be dressed up with effects previously only possible by first filming on reversal original film, then printing the effects into a duplicate negative from which the second generation release prints were made.

A clear understanding of the various "A and B roll" procedures enables the 16mm editor and producer to avoid the limiting camera-dissolves and camera fades, thus assuring the uniformity and versatility of scene transitions.

Figure 3 also illustrates standardized procedure of labeling and preparing 16mm film leaders, locating sync marks, etc.

Abridged from "How To Edit 16mm 'A' and 'B' Rolls," by Edward Pyle, Jr., April, 1950, American Cinematographer.

BULLETIN BOARD

(Continued from Page 486)

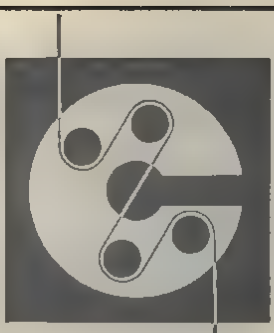
out for them by Mitchell Camera Corp., Glendale, Calif.

★

Metro-Goldwyn-Mayer, studios, incidentally, has its own Vista Vision type camera, which it is keeping under wraps. Developed by John Arnold, ASC, head of the studio's camera department, camera has lateral film movement instead of vertical, as does Vista-Vision, but a curved film plane in the gate. Also, intermittent is interchangeable with others to provide aspect ratios of different sizes, ranging from six to ten sprocket holes in film length.

★

Mack Stengler, ASC, has been shooting the "Life With Elizabeth" TV film shows on an average of one a day—approximately 65 camera setups in an 8 hour period.



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(Continued from Page 525)

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TODD-AO NEWEST WIDE-SCREEN SYSTEM

(Continued from Page 496)

horse, or a train in motion—entering the scene from one corner and traveling across diagonally—would appear on the screen to pick up speed as it neared the center, then sharply diminish in speed as it proceeded toward the opposite side of the screen.

Makeup is another important factor, according to Surtees When not exactly right, it shows up glaringly on the screen. "One thing we learned early," said Surtees, "is that Todd-AO is not kind to the aging. Middle-aged or elderly players really look their age when photographed in color with Todd-AO, even with the benfit of the most expert makeup "

fn the heginning, the origination and development of Todd-AO called for a complete revolution in equipment design—from the camera down to the splicers—even sound recording equipment interlocks had to be revamped because recording equipment for Todd-AO runs at the same conventional speed as 35mm, 90 feet per minute, against the speed of 140 feet per minute for the picture

While the Todd-AO picture negative is 65mm in width, the release prints are on 70mm film—the extra width accommodating the extra tracks for stereophonic sound

The well-known Phillips Electric Company of Holland designed and is constructing the Todd-AO 70mm projectors which are to he used in exhibiting "Oklahoma" and other productions yet to be made in the Todd-AO process. The Phillips company presently is at work on a revolutionary new "universal" projector for theatres that will take both 35mm and 70mm films interchangeably, enabling an exhibitor to screen motion pictures in every format that is presently available without the need for investing in dual projection equipment The changeover from 35mm to 70mm, for instance, will be accomplished simply by flicking a switch and twisting one or two dials, it will he unnecessary to interchange film movements, gates, etc

When the Rodgers and Hammerstein Company prepared to shoot on the Nogales, Arizona. location they set up there in advance a complete machine shop staffed with expert technicians from Mitchell Camera Corp., American Optical Company, and others This enabled the company to promptly make any changes or repairs on the cameras on location without the delays that otherwise would he encountered were it necessary to ship the cameras back to the studio.

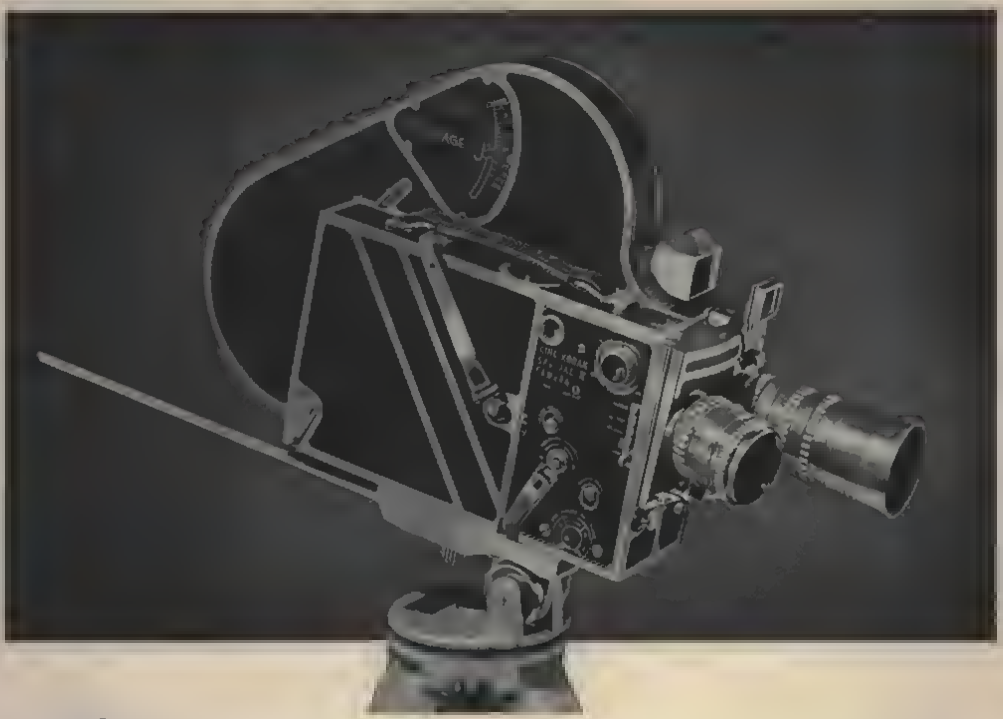
When the company began the first day's shooting, it had but two Todd-AO cameras. Additional cameras were shipped as they were completed by the factory Ultimately there were six cameras on the location, plus a spare head designed to take all the Todd-AO lenses previously described

Naturally enthusiastic about Todd-AO, Robert Surtees is firm in the belief that the system is the true showman's medium. Todd, Rodgers and Hammerstein all are sagacious showmen, each with many outstanding successes to their credit They recognized immediately the great possibilities presented by the Todd-AO system in bringing to the motion picture screen their many valuable stage properties, without losing any of their spectacular value. The first, "Oklahoma," is rapidly nearing completion. Final scenes are now being shot on the sound stages at MGM studios.

Here Surtees has developed further new approaches in the photography of the picture He employs additional contrast, which he believes is vital in the Todd-AO system because otherwise the picture would flatten out on the enormous screen. As an example, when shooting interiors, he lights them entirely with arcs. All interiors are so vast, that it takes a tremendous volume of illumination to bring the lighting level up to that encountered in shooting exteriors, which most of the interior sets must match. The key Surtees employs in matching color temperature on these "indoor exteriors" is the chart of color temperature readings, which he made for each scene photographed on location, scenes that had to be matched later at the studio on the sound stages

The introduction of Todd-AO has also been an interesting experience for Floyd Crosby, ASC, who directed the photography on the second unit, also on location in Arizona One of the big challenges for Crosby was the problem of working out methods of mounting the Todd-AO camera on a number of vehicles ranging from locomotives to conventional camera cars — all of which Crosby had to use in filming the scenes that were part of his assignment. Here again, the problems of the extreme wide angle of the lenses and the "cross-screen" movement of players, etc., had to be taken into account, more than elsewhere, perhaps.

As more Todd-AO cameras are manufactured, they are to be made available to other studios and independent film producers by the Todd-AO company. In the meantime, Rodgers & Hammerstein are preparing another production to follow completion of "Oklahoma."



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